

Audubon

magazine





DON ECKELBERRY is one of America's foremost painters of birds. He has been a staff artist for the National Audubon Society and did the illustrations for the Audubon Bird Guide series, the recently published "Our Amazing Birds," and other books. Mr. Eckelberry has traveled all over the United States studying birds and has recently spent some time in Mexico. His home is in Babylon, Long Island.

*"... to get
full measure
from days afield"*

WRITES DON ECKELBERRY: "A really good binocular is a necessity to anyone who wishes to get full measure from days afield. There is no other way to enjoy the intimacy of a close-up view short of confinement in a blind. Most of my paintings have been based on what I have seen, at one time or another, through my B&L 7x,35's or my Spotting Scope."

Don R. Eckelberry

WRITE FOR FREE CATALOG. 32 pages of useful information you should know before you buy any binocular. Tells how to select a glass for your own use. Bausch & Lomb Optical Co., 12011 Lomb Park, Rochester 2, N. Y.



Bausch & Lomb
Zephyr-Light
7x,35 mm Binocular
Balcoated Optics
\$155, plus tax



When writing advertisers, please mention Audubon Magazine

Audubon magazine

Volume 54 Number 6
Formerly BIRD-LORE

PUBLISHED BY THE NATIONAL AUDUBON SOCIETY

*A bimonthly devoted to the protection and preservation of our native wildlife.
Fifty-fourth year of continuous publication.*

CONTENTS FOR NOVEMBER-DECEMBER 1952

LETTERS	344
BIRD'S EYE VIEW, by Roger Tory Peterson	346
THE WHITE-TAILED DEER OF PIMISI BAY, by Louise de Kiriline	350
WHAT DOES A CITY NATURALIST DO? by Helen G. Jefferson	354
VOICE IN THE DARK, by Lewis Wayne Walker	358
THE FIDDLER BY THE SEA, by Hugo H. Schroder	362
NATURE IN THE NEWS	366
DOROTHY SNYDER—TEACHER, CURATOR, NATURALIST, by Barbara Elinore Hayden	368
DR. HERBERT MILLS, by John H. Baker	372
YOUR WILDFLOWER GARDEN, by Charles E. Mohr	373
SEEING HUMOR IN THE LIVES OF BIRDS, by Richard G. Beidleman	376
THE PRESIDENT REPORTS TO YOU, by John H. Baker	380
WATCHING WILDLIFE AT CRATER LAKE, by Paul Shepard, Jr.	382
WHEN IS AN ANIMAL RARE? by Cyril E. Abbott	388
AUDUBON GUIDE TO BIRD ATTRACTING, by John V. Dennis	394
NEW AUDUBON HOUSE	400
BOOK NOTES, by Monica de la Salle	402
COVER: WHITE-TAILED DEER photographed by Allan D. Cruickshank	

Kenneth D. Morrison, EDITOR; John K. Terres, MANAGING EDITOR; Andrew Bihun, Jr., ADVERTISING MANAGER; Frederick L. Hahn, EDITORIAL LAYOUT; CONTRIBUTING EDITORS: Arthur A. Allen, Henry Beston, Alan Devoe, George Dock, Jr.; Ludlow Griscom, Louis J. Halle, Jr., John Kieran, Robert Cushman Murphy, Hayden S. Pearson, Donald Culross Peattie, Roger Tory Peterson, Herbert Ravenel Sass, George Miksch Sutton, Edwin Way Teale.

AUDUBON MAGAZINE is published bimonthly by the

National Audubon Society. Subscription \$3.00 per year in U. S., its possessions and Canada; 2 yrs.—\$5.50; 3 yrs.—\$7.50; Foreign, 1 yr.—\$3.25. Checks and money orders should be made payable to AUDUBON MAGAZINE. Editorial and advertising office, 1000 Fifth Avenue, New York 28, N. Y. Reentered as second-class matter April 29, 1942 at the Post Office at New York, N. Y., under the Act of March 3, 1879. Copyright, 1952 by the National Audubon Society. Postmaster: If undeliverable, please notify Audubon Magazine on form 3578 at 1000 Fifth Avenue, N. Y. 28, N. Y.

INDEXED IN THE READER'S GUIDE TO PERIODICAL LITERATURE



NATIONAL AUDUBON SOCIETY

1000 FIFTH AVENUE

NEW YORK 28, N. Y.

COMING EVENTS AT AUDUBON HOUSE

"WILDLIFE ON PARADE"

Photo and Film Department

Exhibit of Nature Photographs

thru December

Audubon House and the Library are open Monday through Friday from 9 to 5. Closed Saturdays, Sundays and Holidays.

Your Membership Supports This Work:

Audubon Junior Clubs, in which more than nine million children in schools and youth groups have been enrolled since 1910.

Audubon Camps, for training adults in nature and conservation, at Medomak, Maine; Greenwich, Connecticut; Norden, California.

Audubon Screen Tours, lectures and color motion pictures which reach an audience of 500,000 people a year in some 200 cities.

Audubon Wildlife Tours around Lake Okeechobee and into the Everglades National Park, under direction of trained naturalists.

Audubon Art Tours, loan exhibits of original art by famous bird painters.

Branches and Affiliates of your Society advance the Audubon cause in more than 200 communities.

Research Projects, involving especially species threatened with extinction.

Photo and Film Department, from which wildlife photographs and slides can be purchased and educational films rented.

Service Department, through which advice as to nature books, prints, bird cards, binoculars, etc., may be obtained, and such items purchased.

Public Information Department services members, and furnishes the press and radio with information about nature and conservation.

Publications: *Audubon Magazine*, sent to all members; *Outdoors Illustrated* (\$2.00 a year), well adapted to school use and illustrated in color; *Audubon Field Notes* (\$2.00 a year), publishes results of bird watching, including seasonal reports and bird censuses; *Nature Program Guide*, for teachers and youth leaders; *Junior Club News*, for junior club members, and *Audubon Nature Bulletins* covering the entire field of nature.

Sanctuaries: The Society's wardens patrol more than 1,000,000 acres of land and water including Audubon Nature Center, Greenwich, Connecticut; Rainey Wildlife Sanctuary, Abbeville, Louisiana; Roosevelt Memorial Sanctuary, Oyster Bay, Long Island; San Gabriel River Sanctuary, Los Angeles, California; Todd Wildlife Sanctuary, Hog Island, Maine; and extensive areas in Texas and Florida.

Your Membership will advance public understanding of the value and need of conservation of soil, water, plants and wildlife and the relation of their intelligent treatment and wise use to human welfare.

Regular	\$ 5	Supporting	\$ 50
Sustaining	10	Contributing	100
Active	25	Life	200



Directors: F. Cecil Baker, Guy Emerson, Ludlow Griscom, Erard A. Matthiessen, Mrs. Duncan McDuffie, Wheeler McMillen, Matthias Plum, Mrs. Avery Rockefeller, Paul B. Sears, Grant G. Simmons, Gardner D. Stout, Gustav A. Swanson, Mrs. Carl Tucker, R. Gordon Wasson, Charles G. Woodbury.

Officers: Ludlow Griscom, *Chairman of the Board*; Gardner D. Stout, *Chairman, Executive Committee*; Robert C. Murphy, *Honorary President*; John H. Baker, *President*; Carl W. Buchheister, *Vice-President*; Erard A. Matthiessen, *Secretary*; R. Gordon Wasson, *Treasurer*; Irving Benjamin, *Asst. Treasurer*; Shirley Miller, *Asst. Secretary*.

Regional Offices: Tropical Florida, 311 E. Flagler St., Miami 32, C. M. Brookfield, representative; Pacific Coast, 693 Sutter St. (Room 201), San Francisco 2, Vaughan MacCaughey, representative.

ENJOY EXPLORING NATURE WITH YOUR CHILD!

WHETHER you live in the country or in a crowded city, you can now enjoy nature as never before, in the company of your children. You can roam through woods and fields that blaze with flowers, hum with insect and animal life . . . or spend an afternoon at the seashore with its expanse of sky and water, its winds, sun, clouds, sand, shells . . . without leaving your fireside! Days like these can be exciting adventures of discovery if you and your children are prepared for the wonders that await you. *Exploring Nature with Your Child* by Dorothy Edwards Shuttlesworth, founder and editor of the Junior Natural History Magazine, anticipates the hundreds of questions your children will ask. The author, herself a mother as well as a nature enthusiast, tells them stories in their own language, observes nature through their eyes.

Then, when you do get outdoors with your children, you will find her book packed with suggested activities. There are games that are fun

to play, experiments to perform, hobbies to practise . . . hundreds of delightful things to do . . . all designed to fascinate and educate children—and to deepen the bond between parent and child. Your youngsters are told what to look for on trips to the zoo, to museums, or on walks in the country or city parks. There are instructions on how a child should care for pets, help with a garden, keep an aquarium, start fishing, attract, feed and house birds, collect butterflies, shells, cocoons, leaves, plants . . . identify animal tracks! And these are but a few of the endless number of activities discussed.

EXPLORING NATURE WITH YOUR CHILD

This volume is amazingly comprehensive. It is a complete outdoor guide, a reference book on animals, insects, plants, astronomy, and weather. You'll be able to answer questions like—how do birds fly?—what is chlorophyll?—why do seasons change?—and a thousand more. They're all here: flowers . . . trees . . . birds . . . "bugs" . . . fish . . . animals. And they are described and explained in the form of exciting stories. In short, this volume is a complete nature education for the entire family, one you and your children will turn to again and again for pleasure and information.

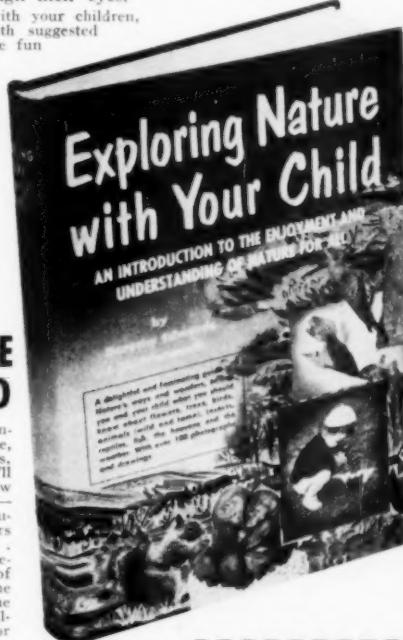
7 DAYS ABSOLUTELY FREE TRIAL

Exploring Nature with Your Child is a big beautiful book—448 pages—over 100 illustrations, many of them in full color—and its price is only \$3.95! But—don't send a penny now—just mail the coupon. Pay nothing on arrival. You and your children can examine this book in your own home—WITHOUT RISK! After you have read the book for a week, send only \$1.95 (plus a few cents shipping charge), then 2.00 one month later. Or, if you are not delighted in every way, just return the book and owe nothing. This is an absolutely free trial offer—you risk nothing—so mail the coupon NOW.

GREYSTONE PRESS

When writing advertisers, please mention Audubon Magazine

NOVEMBER-DECEMBER, 1952



How do bulbs grow into flowers? Here at last are the answers to your child's endless, healthy curiosity about plant life.



Can lambs talk? Sheep give us clothing and blankets.



Geese and ducks are funny! How do birds fly? How do ducks float on water?



Where does the squirrel hide nuts? Can he always find them in the winter?

THE GREYSTONE PRESS, Dept. 519
100 Sixth Avenue, New York 13, N. Y.

AU-11

Without obligation, please send me for absolutely free examination, a copy of **EXPLORING NATURE WITH YOUR CHILD**. In 7 days I will either return it and owe nothing or send only \$1.95 (plus few cents shipping charge) and \$2.00 one month later, in full payment.

Name..... Please print.....

Address.....

City..... State.....

I enclose check or money order for \$3.95. Please send me my copy **postpaid**. Same 7 day examination and full refund privilege applies.

Of course, I want to help safeguard our common heritage—America's wealth of natural resources. Enclosed is my remittance for a year's membership in the class checked below. I understand that my membership entitles me to receive *Audubon Magazine*.

Regular	\$5.00	<input type="checkbox"/>
Sustaining	\$10.00	<input type="checkbox"/>
Active	\$25.00	<input type="checkbox"/>
Supporting	\$50.00	<input type="checkbox"/>
Contributing	\$100.00	<input type="checkbox"/>
Life	\$200.00	<input type="checkbox"/>

Check should be made payable to

National Audubon Society

1000 FIFTH AVENUE, NEW YORK 28, N. Y.

AUDUBON COURT

St. Augustine, Florida



Spotlessly clean cottages, private showers. Well spaced among tall pines. On U.S. No. 1, one mile north of historic St. Augustine, the Nation's oldest city. For rest and courteous service, stop at this quiet, friendly place.

Phone 842-W

Managing Owners:
Mr. and Mrs. Powell

REST Assured
Reservations Suggested

We have served many Audubon members in past years.

George S. White & Co., Inc.

5 Highland Place, Maplewood, N. J.

Insurance Brokers

Specializing in providing proper coverage and reducing costs for thousands of satisfied customers. Cameras and binoculars insured.

When writing advertisers, please mention *Audubon Magazine*

Letters

An Audubon Mystery Explained

In his interesting article, "Audubon's Bats," Charles E. Mohr speculated provocatively as to why Audubon failed to publish any of the drawings by himself and his son John. Mr. Mohr suggested that they were omitted from the "Quadrupeds" perhaps "because bats, although mammals, are not four-footed animals." I myself had proposed a less scientific reason in my introductory text for "Audubon's Animals,"* one which now proves correct, as things turned out. After my study went to press I came upon the following excerpts from letters of Victor G. Audubon to the Rev. John Bachman, co-author of the "Quadrupeds," in the Houghton Library of Harvard University:

"Minniesland, June 17, 1848 . . . We do not include . . . the seals or the bats, and both John and myself think we had better omit them, for we have no opportunity of getting good figures of the seals, those John brought with him from London being drawn from very old specimens, and the bats being few of them done, and we not knowing where to get the specimens. What do you say of this?" (Here Victor listed numerous mammals which they still needed.)

"August 1, 1848 . . . We also omit the seals and the bats . . . If you think it necessary we will publish the *Mephitis leuconata*, the seals and all the bats we can get for Number 31, but the doubtful locality of the skunk and the badness of some of the drawings of the bats, and specially of the seals, cause us not to wish to publish either." (Of 15 pages of bats drawn in water color, nine pages are by Audubon, the rest by his son John; the work of the former is strikingly better, partly because he drew from live specimens for the most part. Where are the seal drawings today?)

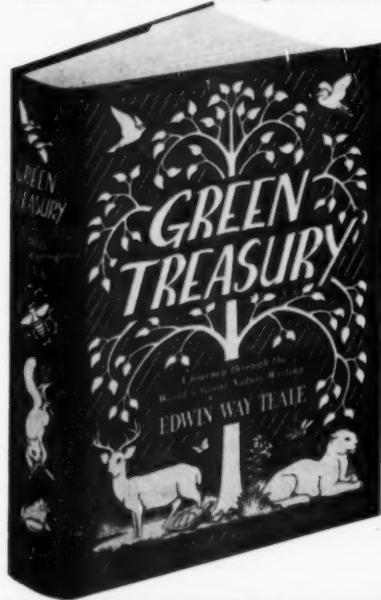
Omission of the bats disappointed Bachman, who had worked for their inclusion. Evidently he decided to salvage his efforts. Victor wrote to him from New York on September 18, 1851: ". . . I am very glad you are busy with the bats. Do you want any of the specimens we have? I suppose you mean the bats of America in speaking of your monograph."

In conclusion may I say how glad I was to

Continued on Page 407

* Published by Thomas Y. Crowell Company, N. Y., 1951.

The new book by the author of **NORTH WITH THE SPRING**



GREEN TREASURY

A Journey Through the World's Great Nature Writing

Selected and Edited by EDWIN WAY TEALE. A fresh and unhackneyed selection from the nature writings of 87 authors, ancient and modern. Here is the biggest and best one-volume nature anthology ever — 600 pages, 200,000 words about birds, animals, insects, trees, jungles, the sea, adventure in wild places; an inexhaustible treasure hoard for nature lovers. *With introduction and running commentaries by Mr. Teale, and striking drawings by Michael Bevans.*

\$5.00

The enthralling story of man's discovery of the natural world about him

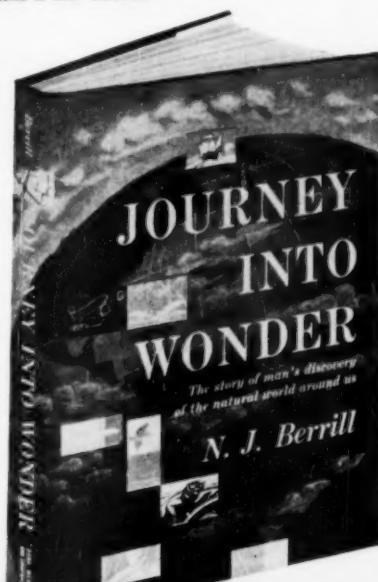
JOURNEY INTO WONDER

By N. J. BERRILL, author of THE LIVING TIDE. This bold and adventurous book re-traces for the fascination of today's readers the voyages of Columbus, Cook, Dampier, Darwin, and other explorers. It tells what animals, birds, plants they really saw, what they thought they saw, what their findings mean to us today. Here is a totally different, totally fascinating book about natural history in its widest sense — with men always the central character. "Stimulating and heartening." — Chicago Tribune. *Illustrated by the author.*

\$4.00

At all bookstores

DODD, MEAD & COMPANY
432 Fourth Avenue New York 16



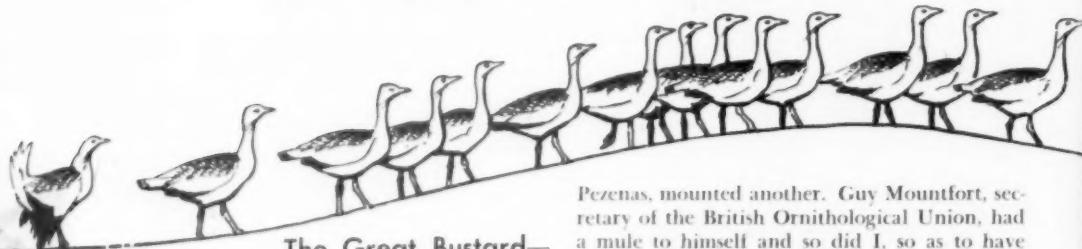
When writing advertisers, please mention Audubon Magazine

NOVEMBER-DECEMBER, 1952

345

Roger Peterson's

BIRD'S-EYE VIEW



The Great Bustard— Grandest Bird in Europe.

WHEN I found myself on the rolling plains of southern Spain last spring, I ruled out the great bustard as one of the birds I would be likely to see. The green corn was already too high and the hundreds of square miles of this grain (which is not what we call "corn") clothing the vast undulating plains of Andalucia made it seem a hopeless task to find the scattered bands. But our friend, Señor Don Mauricio Gonzales Díez, heir to the sherry empire which centers around Jerez, said, "Of course you must see the great bustard if you are to draw its picture for your book; I shall see to it." That afternoon he sent out an old poacher—"a reformed poacher," he assured us—to locate a flock.

Next day we drove to our base of operations, a hacienda a few miles north of Jerez. While the old poacher, a little man with leathery visage and fierce deep-set eyes diverted us with stories of the Andalucian hemapode and other rare Spanish birds, Don Gonzales sent one of his horsemen into the rain to see if the bustards were on location. He returned after an hour or two, confessing no luck, and suggested we try the next hacienda. A *bandado*, or pack of bustards, had been seen there that morning. There in the great white-washed courtyard, while the tenant peasants gathered round, we selfconsciously mounted our mules. The usual thing is for two men to ride on each mule, and believe me, these Spanish mules are most uncomfortable. You must almost do a split to straddle the broad saddle and projecting panniers. No wonder the peasants so frequently ride side-saddle.

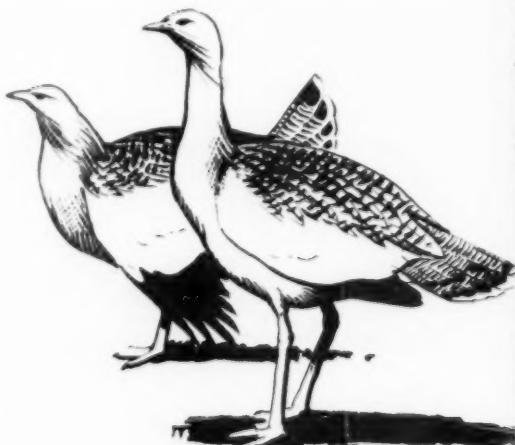
There were eight of us. Don Gonzales and the old poacher rode one mule—the tricky one. Etchecopar, secretary of the French Ornithological Society and my friend, Francois Hüe of

Pezenas, mounted another. Guy Mountfort, secretary of the British Ornithological Union, had a mule to himself and so did I, so as to have more freedom for photography. Two Spanish horsemen on hybrid arabs went along to drive the bustards should we locate them.

Scarcely had we started when the skittish mule jumped a ditch unexpectedly, sending Don Gonzales and the old poacher into the mud in a tangle of arms and legs. Don Gonzales got up, but the poacher lay there in pain and finally rose with difficulty. The poor old fellow had broken his shoulder, so one of the horsemen took him back to the *posada*.

The skies were heavy with scudding gray clouds coming in from the sea but the rain had stopped. Pratincoles, those strange tern-like shorebirds, hawked for insects and everywhere could be heard the high *dzeep, dzeep, dzeep*, monotonously repeated by fan-tailed warblers cruising above the waving seas of corn. At one time we counted 22 black kites within sight. They seemed to be after grasshoppers.

After we had proceeded up one hill and down another for about four kilometers (2½ miles) the caballero out front halted and bade us bring our glasses to bear on a field of sprouting maize high on a hillslope. We could discern about a dozen tan objects. They could



have been sheep, or anything else for that matter. But our binoculars showed them to be bustards, 14 of them, all males.

What magnificent creatures these *barbones* are. They strut about turkey fashion, trailing their wings and spreading their tails fan-like over their backs. From their necks, swollen to abnormal thickness, flow bristling white beards. Even our wild turkey is scarcely as impressive, for a big *barbudo*, as the old bearded veterans are called, will exceed 30 pounds. The females are on their eggs in the corn, leaving the "bulls" to bluff and strut in their bachelor clubs or *toradas*. Sometimes a bird dragging its wings in display will get its stiff primaries so caked with balls of sticky mud that it cannot fly and so is caught. We saw one of these captives at Guy Williams' bodega in Jerez, where the proud thick-legged bird strolled about among the long rows of huge sherry casks.

We watched our flock for some time, scarcely daring approach closer (they were a quarter of a mile away) but we wished to see them fly. So while we dismounted and stationed ourselves behind one of the ancient draw wells which furnish the cattle their water, Don Gonzales sent forth the horseman to drive the birds toward us. Setting off in a wide circle he was gone from sight for half an hour when we saw him appear over the crest of the hill behind the bustards. Alert, they stopped their strutting, stretched their necks and started walking, goose-like, with bodies horizontal and long necks erect. They looked most stately and dignified as they marched single file, and then, almost reluctantly, they spread their huge wings. This slow retarded take-off is said to account for their Spanish name of *Avetarda* as well as their French name of *Outard* and is suggested by their scientific name *Otis tarda*.

Never, with the possible exception of my

first flamingos, have I been more impressed by a flock of birds in flight. They did not beat their wings rapidly, like gallinaceous birds, as I had expected them to do, but very, very slowly, more slowly than any goose, the great white wings contrasting with their golden bodies and the bright green of the maize and corn. They came on in single file and lit on the crest of the next small hill. Our rider pressed them again, whence they came by, into the wind,



SHANTY BOAT CRUISES
A novel holiday afloat into the tropical Everglades country—a bird lover's Paradise

One Week Cruises—December 22 thru April — \$86

CAPT. JIM NISBET

Dept. A, Box 1628, Ft. Myers, Florida

UP TO 2000 POWER! MICROSCOPES...OPTICS

FROM \$14.95 OPTICS FROM \$1.00

UNHEARD OF VALUES IN PROFESSIONAL QUALITY OPTICAL INSTRUMENTS...

These fine instruments are used throughout the U.S. in laboratories, schools, colleges and physicians' offices

SEND FOR FREE 32 PAGE CATALOG

World's greatest values in hobbyists, students, and professional research microscopes, complete accessories, mechanical stages, eyepieces, prepared slides, dissecting microscopes, ore, mineral, gem microscopes, binoculars, telescopes, magnifying glasses of all types. Each item a bargain...money-back guarantee.



THE AKRON 4400 SUNSET BLVD.
LOS ANGELES 27, CALIF.

Dept. 11-AM



NOW! IMMEDIATE DELIVERY Imported German Binoculars

Featherweight 16 oz. ★ Coated Optics
Central Focus ★ Wide Field of View

6x30 Model \$69.00 ★ 8x30 Model \$75.00

Price includes all taxes, leather case and carrying strap
Club secretaries — write for group discount for your members

Complete Line of BINOCULARS, MAGNIFIERS, COMPASSES, MICROSCOPES & STOPWATCHES

SOUTHERN PRECISION INSTRUMENT CO.

MOORE BLDG. • SAN ANTONIO 5, TEXAS

Domestic and Foreign Dealers
Inquiries Invited

When writing advertisers, please mention Audubon Magazine

quite close this time, so that we could see them in their full glory. I can recall no experience in all my 30 years with birds that stirred me more.

What of the future of these birds in Spain? They are gone from most of Europe. The Viscount Alanbrooke, Marshall of the British Army, would like to bring them back to Salisbury Plain, the last stronghold in England where they lived 200 years ago. There they would be under army protection. In Spain, it is only because of the protection of the big landowners that the great bustard survives. Don Gonzales estimates that less than 50 are shot each year in the Jerez area, well within the natural reproduction, because few people can organize a bustard drive. Poachers get a few more. He informed us that after the Spanish civil war, some army pilots would chase the flocks by plane, tire them out and slaughter them. The extinction of the birds was feared. When this became known, a stop was put to the practice.

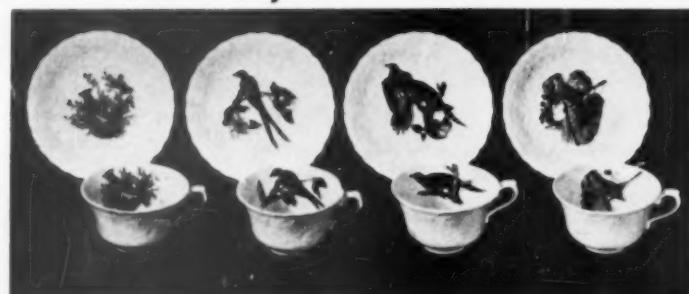
On our way back to the hacienda the sun came out; scarlet poppies, cream-colored daisies, lavender bugloss and a hundred other flowers

decked our path; the meadows and the sky were alive with larks—skylarks, crested larks, short-toed larks and calandra larks. As we jogged down the trail, Don Gonzales, a handsome young man of six foot three, and a good ornithologist, turned to me and asked, "Why is it that when an Englishman comes to us he almost always knows the names of the flowers and the birds. He is interested in them all. Do you think there is something basically different in the Latin mind—some blind-spot?" I said I did not think so, that it was probably a matter of education. I had a similar discussion on this point with my French friends on our drive to Spain. Young Gonzales pondered a moment and suggested that if there was a good book—a simple book—in Spanish, giving pictures and the names of the common birds it would help a lot. People can scarcely take a real interest in things whose names they do not know. It is the beginning.

We talked about such a book and also the need for a Spanish Ornithological Society. I gave him the name of Señor Traves, a good ornithologist I had met in Barcelona, so perhaps the seed has been sown. I hope so.

No Finer Audubon Reproductions ever made

**Audubon birds
faithfully
reproduced
from the
elephant folio
on fine English
dinnerware**



White-crowned Sparrow
Scissor-tailed Flycatcher

Band-tailed Pigeon
Kingbird
Passenger Pigeon
Carolina Turtle Dove
Cedar-Waxwing
Bewick's Wren

Plates: 10 $\frac{3}{4}$ " service plates \$24.00 a dozen \$16.00 for eight
9" dessert plates \$20.00 a dozen \$13.50 for eight
Cups and Saucers: \$21.00 a dozen \$14.00 for eight

Order From: SERVICE DEPARTMENT, NATIONAL AUDUBON SOCIETY
1000 Fifth Avenue, New York 28, New York
or from your nearest dealer

MADDOK & MILLER, Inc. • 129 Fifth Avenue, New York, New York

When writing advertisers, please mention Audubon Magazine



New! And irresistible!

Hammond's Nature Atlas of America...

the only volume of its kind in print



With 256 pages . . . 320 full color illustrations from original paintings . . . and 34 pages of full-color maps

This beautiful big book is for nature lovers.

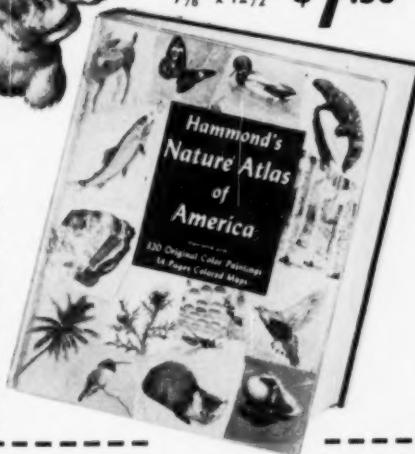
Magnificent full color original paintings (320 of them)—and clear, fascinatingly written descriptions will help you identify practically every wild animal, bird, wildflower, snake, insect, fish, rock or tree common to America.



Range maps in full color (104 of them) show the areas where all 320 subjects may be found. Large-scale colored sectional maps covering the United States and Southern Canada show how to get to the nation's finest observation posts for nature study. There are tables of wildlife refuges.



Actual size,
9 7/8" x 12 1/2" **\$7.50**



This is an invaluable reference book for every home. A "must" where there are children. A delight on every vacation trip you take. Send for your copy, and for gift copies, today.

**C. S. HAMMOND & CO.
PUBLISHERS**

National Audubon Society

1000 Fifth Avenue, New York 28, N. Y.

Please send me copies of *Hammond's Nature Atlas of America*, at \$7.50 each. I enclose \$

Name

Address

City Zone State

When writing advertisers, please mention Audubon Magazine

Wild beauty, and a delicate sensitivity
and motions marked

The White -

"Her large ears twitching nervously, she came . . . with extreme cau-
tiousness. . . ." Photograph of white-tailed deer by L. G. Kesteloo.



to sounds tailed Deer of Pimisi Bay

By Louise de Kiriline

IT was a brilliant morning in March. The sun blazed down upon Pimisi Bay and on the Mattawa River of southern Ontario. The high vertical cliffs on either side of the river reflected the sunlight and its glorious warmth. Below Talon Chute the water lay open and smoking. But on the lake the ice was hard and granulated from the effects of deep-freezing nights and daytime sun-thaw, and it gave off translucent heat waves visible only against the distance.

All of a sudden, a deer leapt out in front of me from behind the point. Bouncing high as if made of nothing but air and rubber, it bounded over the ice, flag aloft, showing the long silky hairs underneath flounced into a magnificent white rosette. A smart crunchy tattoo with a hollow undertone resounded from the ice under the deer's hoofs.

The deer stopped, all four legs spread disorderly in the pose of the last interrupted motion. With irrepressible curiosity, it looked around at me who had disturbed its lazy browsing in the sunshine. Then, up went its head in a movement of playful defiance, and it set off in a parade trot, the like of which was never equalled in the highest equestrian school.

Hoofs scarcely touching the ice in the high-stepping gait, the deer flung wide its forelegs in elaborate semi-circles and swung its graceful head from side to side in a high mood of extravagance and show, born, surely, of the life-giving brilliance of the sun. Never has any choreographer designed



Winter scene photographed by Henry H. Graham.

a *pas seul*, nor a Nijinsky executed a measure, of more plastic perfection than the dance over the sparkling ice of this wild and free fawn. There was no negative element in this show of motion, no fright in the speed, nor desire to be gone out of sight. Here was all the pithy reality of pure exuberance, of pure beauty, set against a backdrop of ice and sky and wooded shoreline, a natural performance such as no stage has ever witnessed. For minutes I stood watching in spellbound delight, until the hoof-beats died away and the deer vanished behind wreaths of rising vapors at the First Rapids.

A winter and a half passed from the time the deer first arrived in our territory until we saw them. In all this time, we read the fresh evidence of their presence nearly every day in the marks left by their dainty hoofs as they stepped along our paths, or made four-footed take-offs into the soft snow, or stamped around amid the white cedar brush on the terrace below the Loghouse where we lived, overlooking Pimisi Bay. So close they had been under our windows, yet never seen. Elusive they were like mirages, forever vanishing, discrediting even the signs of their own passing.

Then, on the second day of the New Year, it happened. Well-nigh a hundred times I had come outside stealthily, trusting to luck that some day I would surprise these shy animals. But this day I forgot. Scared by my sudden appearance, a deer bounded away with a startling snort into the dawn twilight. And all I knew was that it had been there, that I had seen it at long last.

The spot where the deer had been browsing was about 50 feet from the house. Hardly any cedar leaves remained within their reach in the small grove after their frequent visits in the past. So we put a block of salt on a rock and tied fresh bushy branches of cedar to a trunk. The next morning we knew that our efforts had been appreciated.

This gave us the idea of enticing the deer yet closer to our windows by means of a gradual advance of the cedar boughs to a place in front of the house where we planted a small forest of branches in the snow. We moved the salt, too, and cleared a place for it beside the path. Very soon the deer caught on and they began coming to this feeding bower regularly, without displaying any surprise at the everlasting resources of their favorite winter food. And it was here that we eventually learned something of the ways and plays of the northern white-tailed deer, *Odocoileus virginianus borealis*.

There were two of them, a buck and a doe. The buck was small, young probably, and graver than the doe. With only tiny knobs replacing the three-pointed antlers he shed back of the Loghouse last fall, he looked like the doe's baby. His large liquid eyes were fringed with long curved lashes and gazed upon the world with trusting naivety. He stepped daintily as if on limber stilts and the spread of his cloven hoofprint revealed his mood and the speed of his advance. Nearly always he took the lead ahead of the doe in an apologetic way, as if begging forebearance with this bravado of his, due solely to her safe conduct. Even when she was out of sight, his constant and acute consciousness of her whereabouts was never in doubt.

He kept throwing back his head over his shoulder, his munching jaws still and his eyes fixed in the direction from whence, sure enough, she eventually emerged to pose like a figure carved on the brow of the hill.

In shape and temperament the essence of fleetness, the deer in repose and safety, as I was to learn in time, were past masters of slow-motion. The doe took exactly 20 minutes to descend from the brow of the hill to the feeding place at the window, a distance of a scant 150 feet. Her large ears twitching nervously, she came down with extreme cautiousness, stepping as if on pine.

She withdrew and set down her hoofs, one at a time, precisely in the bucks' tracks and without disturbing a speck of snow or leaving an additional light mark of her own slender shins. She took advantage of every bit of cover provided by naked bushes that stuck out of the snow or by the lower branches of the evergreens, behind which the outline of this large and deliberate animal became so confused as to render her all but invisible. On bright, moonlit nights, when the interplay of silvery light and blue-black shadows created fantastic patterns upon the snow-covered forest floor, I saw her retire into an obscure patch and become totally engulfed by it in all her ruminant amplitude, as if she were no longer there.

I knew the doe from the buck anywhere because she was curiously unlike him. She was of a lighter fawn color and her head was more elongated than his. An odd kind of dignity and maturity characterized her poses and movements; her girth was ample and her flanks spacious and she lacked only the fawn at her side to complete the maternal mammalian picture. Oftentimes she merely stood, interminably, wearing a vastly bored expression and chewing the cud thoroughly and endlessly.

After she got his "all-safe" signal she took no further notice of the buck. Only on occasion, when the two met at close range, she displayed recognition that they belonged together. She would throw up her head and snap at him, and sometimes she reared against him with pawing forefeet

and ears flipped back flat as if annoyed at his proximity. But how could I guess her feelings with accuracy?

Their approach to the feeding place was a matter of grave importance since it involved the security of an existence perhaps more vulnerable and precarious than that of any other sylvan inhabitant. They used two main avenues, down the steep incline from the brow of the hill or along the path from the spring. Both these approaches had the advantage of enabling them to survey the feeding place and its surroundings spread out below without themselves being seen before they emerged from behind a curtain of evergreen branches. Often they stood there for half an hour or more, as if to outwait any chance disturbance, before they decided to come down at last. But when, during a number of visits, the place proved to be devoid of upsetting elements, the deer rapidly became accustomed to the peacefulness of the situation and began moving about with greater confidence.

Yet, even as they stood munching the cedar boughs below our window, every muscle and nerve of their bodies were constantly a-quiver. A leaf rustled, a chickadee twittered, and the deer's ears flicked, always on the *qui vive*. When the wind in the pine above dumped a pad of snow on the roof with a thud, the little buck sank to his knees in a spontaneous motion of avoidance. But the conditioning of the deer to the cars, trucks and buses that rumbled, roared and backfired, racing up and down the hill on the highway only a few hundred feet away, was of long standing. Provided none stopped, provided no other sound was mixed with their noise, such as the clatter of a horse's hoofs or the crunching of a man's soles against the pavement, and that no unfamiliar movement could be detected except that of the speeding vehicles, the deer treated them as air. Not even did the animals shy away from them during a playful canter in the moonlight; instead the prancing deer often danced alongside these roaring monsters with their glaring eyes as if they belonged to the play.

Our faces in the window were a source of apprehension to the doe especially. Were they there before she arrived, she appeared oblivious of them until a movement gave them away. Then she bounded off. But she soon returned, trying out various new approaches, watching the window intently, until she was apparently reassured that either the faces did not see her or she could no longer see them. At other times she stood her ground and gazed upon the "odd" apparitions, raising and lowering her head to make sure her eyes did not deceive her. But in due time, the faces in the window, like the cars on the road, were accepted as harmless and inescapable accessories to this particular environment. For the deer's own safety, this was as far as we wished to pursue their taming.

At that time the Loghouse harbored a cat which, quite naturally, considered the surroundings as his territory and the deer as illegitimate trespassers. He made this known by racing up a tree trunk, tail fluffed and claws noisily scratching the bark; or he jumped on the roof and galloped around, finally pretending to spring upon the heads of the jittery deer but saving himself by a hair's breadth. The deer fled. But soon they gained courage, since this toy panther apparently lacked both the size and attributes that to them meant danger. One night, as the cat commenced his intimidation routines, the buck faced him in front of the doe. With tails lifted and the long white hairs of their flags spread and stiffened the deer met threat with threat, the buck gave an explosive snort and with a motion almost too pretty to convey belligerency he stamped the ground three times with his dainty front hoofs. The effect of these moves upon the cat was spectacular and all further demonstrations on his part were inhibited.

This was what we saw of the deer at the feeding place. They came there at all times, at dawn and at dusk, in the dark of the night and in the bright light of midday; but most often they came in the afternoon. Often they came in snowy weather with their backs, shoulders, and long eyelashes powdered white. Only on cold days, when

Continued on Page 390



One of the most important parts of Covel's program is his work with young people. Photograph by Commercial Studios, Oakland.

What Does a City Naturalist Do?

At California's oldest state game refuge, Paul Covel is the first full-time naturalist to be employed by a Pacific Coast city

By Helen G. Jefferson

CITY naturalists are not numerous. Ranger Paul F. Covel was the first full-time naturalist to be employed by a Pacific coast city. Although he lives and works in Oakland, California, a city of more than 420,000 population, he has the outdoor life a naturalist loves. Since 1917 he has been employed by the park department to supervise the unique waterfowl refuge at Lake Merritt.

As early as 1869 Lake Merritt was made a California state game refuge,* which attracted wild ducks; particularly during the

hunting season. The ducks attracted people who came to feed them. Since 1915 the park department has carried on organized feeding, of which the daily 3:30 p.m. feeding is an interesting attraction. In 1950, more than 350,000 people visited the feeding station, among them visitors from every state in the United States, every province of Canada, and 13 foreign countries. At the height of the season a ton and a half of grain is fed to the birds each month. In addition, visitors enjoy feeding the birds bits

* For an early account of this oldest state game refuge in California, see "A Lesson in Civic Ornithology" by Joseph Dixon, *Bird-Lore*, Sept.-Oct. 1927, pp. 329-334.

of bread brought from home, popcorn, or approved duckfood bought at the park concession.

The interest of visitors is aroused by the birds and they want to know more about them, at least the names of the different kinds of ducks and other waterfowl they see. In 1934, to supply this need, Covell was asked by the Lake Merritt Breakfast Club to give public talks on Sunday afternoons. Covell not only identified the wildfowl, but also told interesting facts about them. This program has been continued, except for an interruption during World War II.

The informational feature of Covell's work is one of the most important parts of his job. He conducts a strenuous program of lectures and informal talks and after his Sunday lecture, Covell leads interested groups on walks across the park. During these walks he identifies flowers, shrubs and trees, and distributes lists of these plants to help the groups learn them. Twice

a month, on Saturdays, he leads people on field hikes into the hills surrounding Oakland. On week-days, at feeding time, he often gives short introductions of the ducks and other birds to his guests. At other times he is ready to answer patiently, and with a smile, the question, "What duck is that?" He replies with as much eagerness and interest as he would if he had been asked the question the first time, instead of, perhaps, the millionth time.

One of the most important parts of his educational program is Covell's work with young people. He is in great demand as a speaker in schools and before Boy Scouts, Girl Scouts and other youth clubs. Many scouts in the Oakland area earn their merit badges in nature study through his teaching. Besides learning to identify birds and plants, the boys and girls absorb some of his enthusiasm for and love of nature. During the summer, working with the day camps is one of his most important activities.

The introduced mute swan nests here each year. Photograph by Mrs. Oscar Sway.



What else does a city naturalist do? At nesting time he is kept busy supervising a mallard duck hatchery. The mallards are the only wild ducks that have made Lake Merritt their permanent home. Liking the free food, protection and easy life, they remained, and now nest there each year. Last year, parent mallards raised more than 500 ducklings, and sometimes a thousand will be hatched during the season. The nesting season begins in April and extends through July. Because gulls and herons like duckling dinners, the young mallards need protection and care. As soon as they are hatched they must be gathered up and put in stout nursery pens with their mothers or foster-mothers. Since they can swim instinctively, a rowboat is needed to round up the infants. They are kept in pens secure from predators for about four weeks, until they are large enough to take pretty good care of themselves.

To encourage nesting and with the hope of inducing other species to remain, the Oakland authorities established a small artificial island in Lake Merritt in 1923. Pampas grass has also been planted at the feeding area to offer cover. The mallards do not always make the most fortuitous choice of sites for nests, sometimes nesting near paths where people walk and sometimes on a balcony of a boathouse. The young mallards reached the lake from this lofty nesting site by jumping the 18 feet to the water.

The mute swan, which was first introduced here in 1925, also nests each year, but with many nesting failures and tragedies. Last spring one nest of nine eggs was spoiled because they were kicked out of the nest, apparently during a domestic "spat" between the parent birds. Of the four eggs in the other nest, three hatched but only one cygnet was reared. Because the other two cygnets disappeared without a trace—not even a feather as a clue—Covel thinks it was a case of kidnapping rather than murder.

Up to now the only other wildfowl that nest at Lake Merritt are Canada geese, which are reported to have nested on Duck Island. There is also a colony of black-crowned night herons which roost on the

island, and they are also reported to have nested there once.

One of Covell's headaches is the stealthy introduction of unwanted domestic ducks and ducklings which people release in the refuge. When the ball of yellow fluff, that was such an attractive Easter gift, grows to an awkward size or begins to be a care, it is left at the waterfowl refuge where it will presumably have food and attention. This seems to be a humane solution to the problem but for the naturalist, it creates difficulties. Mallards and domestic ducks will interbreed, and the hybrid offspring are a problem in identification. It is undesirable to dilute the mallard stock and allow a mixed breed to grow. The hybrids are periodically removed, but a few Pekin and Muscovy ducks are allowed to remain as samples of their kind.

Sometimes other problems are dumped on the doorstep of the naturalist. He may arrive at his office and find someone has left an orphaned or crippled bird to be cared for. Once, a California murre and a murrelet were brought to him on the same day. Special feeding difficulties make it impossible to save all of these orphans and cripples. Some, only slightly wounded, recover and make interesting additions to the wildlife in the refuge. Four wild whistling swans were introduced this year and are already as tame as the mute swans.

Such introductions often mean radical changes in a bird's diet. A black brant, that ordinarily feeds on eelgrass, seems happy on a diet of grain and the popcorn and bread that admiring visitors offer. Other interesting changes of diet by birds noted by the naturalist are the taste for acorns developed by the resident mallards and a liking for grass developed by widgeons. If undisturbed, the widgeons slowly and systematically mow the lawn.

Another activity of the wildlife refuge staff is the banding of waterfowl, which takes place during the first week of November each year. This has been carried on at Lake Merritt since 1926. For some time before the day for banding, the ducks are fed in a large trap near the fresh-water pool. On banding day as many as 2,000 ducks

may be rounded up, when the trap is closed. About half of these are unbanded birds. These are banded and careful records made of those previously banded. Ducks sometimes return five or six years to the refuge, but few live longer than that. Three pintails, caught in 1943, were an exception. They had returned that year for the fourteenth consecutive season.

The Lake Merritt banding did not secure data on the diving ducks there (canvasbacks, scaups and others), which do not come to the "feeding pool." Two years ago a trap was set up to capture some of these ducks, but a better trap has been obtained which works automatically and is funnel-shaped like a fish trap. With this new equipment, the banding of the diving ducks should add interesting information on their movements and length of life.

If you visit Lake Merritt during the winter, pintails will be there in abundance. At the peak of the season more than 2,000 of

them outnumber the resident mallards. The widgeon is next in abundance. Of the diving ducks, canvasbacks and lesser scaups are most numerous; but greater scaups, American goldeneyes and ruddy ducks are also common.

If your visit should be in summer you may see immature, crippled, or non-breeding waterfowl that are usually present in winter only. Of birds other than ducks and geese you may see mudhens, gulls, terns, egrets, grebes and cormorants.

The number and variety of these depend upon season, weather conditions and the amount of fish in the lake. You will also see three white pelicans, with wings upraised, swimming in single file and scooping up fish as they go.

One thing is certain. The birds will welcome the food that you bring, and Paul Covell will be happy to tell you about his bird boarders that add so much interest and beauty to Oakland's Lake Merritt.

NEW SIZE MAGAZINE

Starting with the January-February, 1953, issue, *Audubon Magazine* will appear in a larger sized format. Instead of the present 6 x 9 inch magazine, the dimensions will be 8½ x 11½ inches.

The advisability of changing the size of the magazine has been a subject of discussion for more than a year. The editors took into consideration the fact that the present size has been standard since the first issue of *Bird-Lore* in February, 1899.

The major reason for the decision in favor of a larger format is that it will enable us to achieve more effective layout and display of illustrations and text. This was no problem in the early days of the magazine when few photographs and sketches were used.

The change in size is being made at the beginning of a new volume so as not to inconvenience those who bind their copies.

There will be fewer pages in each issue but the total editorial content will remain the same because of the larger page size. So, when you remove the wrapper from your next *Audubon Magazine*, remember that it's the same old friend with a "new look."

Voice in the Dark

***Slowly, we are learning the strange life history
of the poor-will.***

By Lewis Wayne Walker

THE ability to remain hidden is possessed by a surprising number of animals, so much so that many of them are better known by their calls than by sight. This art of living unseen is not limited to the small or large but runs the gamut of sizes, from crickets to coyotes, with many intermediate species between.

As creatures that we hear oftener than we see, the various tree crickets with their nation-wide distribution, are prime examples. They can rub wings—vigorously in warm weather, slower in cold—and still remain hidden for a lifetime. Yet, eliminate the chirps thus produced and a garden at twilight loses a large part of its personality, solely by the removal of a customary sound, so faint, methodical and monotonous that most people do not realize that it exists until after it is taken away.

In a localized way the same loss would be felt if we should momentarily banish the tree frog chorus from moist woodlands; the

"... my heavy boot unintentionally pushed against a poor-will, and shoved her away from her eggs."



pumping notes of a bittern from a dense marsh and even the quavering whistle of screech owls nesting in suburban woodlands. Yet, with stealth, patience and luck, these creatures can be seen, even in the act of making their varied calls—the frog with its ballooned throat pouch, the bittern with pumping body and the owl with vibrating breast. But the poor-wills, birds best known as a mysterious voice in the darkness, are even more secretive. For many years they have not only defied my stealth and patience, but seem to take a fiendish delight in calling from just beyond the rays of a campfire and then flitting further into the darkness where their brown mottled bodies are lost to sight in mottled brown leaves.

Occasionally, while driving over dusty desert roads at night, the headlights will reflect two spots of "eye-shine" and throughout years of such travel I have almost learned to identify the owners of each pair of eyes by the color reflected. Thus orbs of pale green usually have a cat or coyote behind them, while those that glow as silvery discs are usually those of a kit fox. So far, such identifications are "guess work" based on an affirmative majority and only the pink glow of the poor-will seems to be infallible. But even in desert ruts, blinded by bright headlights, the poor-wills remain true to their secretive character and after an instant of indecision, disappear with a moth-like flight.

There are four races of poor-wills inhabiting the West. Those of the desert areas are light in color and match the glare of desert surroundings; those of the brush- and tree-covered coastal regions are dark to the point of being almost black. In a north and south line from southern Canada to the southern end of Baja California, Mexico, there are also geographical differ-



"There, spread in a ruffled manner on the ground, she simulated a broken wing. . . ."

All photographs by the author.

ences in color which form the basic differences in the races as we know them. Thus from Canada into Mexico and from the Great Plains to the Pacific, poor-wills exist by the untold thousands if their plaintive calls can be used as a measure of population. They are not rare in any sense of the word but their nests are found so seldom that to discover one becomes an event in the life of any ornithologist.

When they select a homesite, poor-wills make no attempt to build a nest, but instead choose a place offering some protection for the eggs and then scoop a slight depression in the ground. An uncovered nest with its two lusterless white treasures could not be overlooked by even an unobservant person but with the parent incubating it, the eggs are impossible to see. Home duties seem to change this bird from

a shy, unapproachable voice in the dark to a fearless protector that stakes her all on a plumage of flecked browns and whites and the subtle blend into its surroundings that these markings produce.

It was during this seasonal characterization that my heavy boot unintentionally pushed against a poor-will and shoved her away from her eggs. For a moment she seemed to toy with the idea of recovering her treasures but then instinctive self-preservation got the upper hand and with a distinct hiss she fluttered to a clump of bushes about 15 feet away. There, spread in a ruffled manner on the ground, she simulated a broken wing and repeated this act time after time as I followed her slow progress away from the nest until she became lost in a thick growth of scrub oak. From the center of this dense thicket she



“One of the eggs was pipped, and a faint note came from the hole in the shell.”

uttered solicitous and anxious *werk werk* calls which were answered by another poor-will on a near-by hillside.

Thirty minutes after being practically kicked off her eggs the bird returned to land inches from the nest. Then, moving toward it on her inadequate, weak legs, she stumbled to it and took an incubating position. This was assumed in a drowsy fashion with wings loose at her sides and with eyes closed to mere slits. The feathers on her body were partially roused and with this disheveled appearance she melted into her surroundings like a drop of ink on a black blotter. Even from a distance of three feet she was difficult to see and separate from the rest of the area. On the ground glass of the camera she so blended into her surroundings that I frequently had to lift my eyes from the hood to check and make sure that there was still a bird among the sun-dappled leaves.

After several minutes of incubation a faint series of twin “cheeps” could be heard issuing from the nest but it was not until the adult bird flushed at one of my motions that I discovered the source of the calls. One of the eggs was pipped and a faint note came from the hole in the shell. This in itself was not unduly strange as I believe every naturalist occasionally finds

these “talking eggs.” But at this nest I had my one and only experience of one egg answering another. Each time the unhatched youngster in the pipped egg uttered a chick-like “cheep” there would be an almost simultaneous call from its unmarred twin. It was fainter and weaker, muffled as it was by the shell, but it was distinctly an answer nevertheless.

The following day the precosity that was evidenced while the chicks were still in the eggs became even more apparent after they hatched. Several minutes after the adult left at my close approach, the first chick that had hatched became frightened and left the nest in a surprisingly agile and purposeful manner. Short frog-like hops of about eight inches carried him in a series of jumps to the cover of some dead brush about five feet away. When hidden to his own satisfaction he “cheeped” a few times and the other young one hopped along the same route until the two were again united.

Late that afternoon I looked for them but despite a careful search they could not be found. At the time I could almost feel their presence and I know that I passed within a few feet of this strange and mysterious family that was so admirably equipped to rely on natural camouflage. In a way their dependence on “blend” was reminiscent of any one of a number of terrestrial mammals incapable of flight which “freeze” to remain unnoticed.

During the winter the calls of the poor-wills become a note of the past, or for an optimistic ornithologist a sound to be anticipated in the future. Like most other naturalists I had always been under the impression that these birds migrated southward when the colds of winter killed off their insect prey or forced them into hibernation. This assumption has been strengthened on numerous occasions by seeing scores of pairs of pink eyes shine on the dusty trails of Mexico. These concentrations have always been seen in April, a normal migration month for the region. But now an eminent western naturalist, Edmund C. Jaeger, has brought to light a new and startling chapter in the life of this strange bird, a chapter which suggests that

some individuals hibernate through the winter and forego the long flight southward.*

Jaeger's observations started in an accidental way in the Colorado desert's Chuckwalla Mountains. This area, parched and sunburned in the summer, begins to chill in late October and from then until the following spring the myriads of phototropic insects drawn to light are reduced to only the hardier species. Insect-eating birds such as phoebes, swallows, swifts and nighthawks, also seem to desert the area and thus Jaeger's discovery of a poor-will wedged in a small rock crevice came as a complete surprise. The bird acted as if it were lifeless and permitted itself to be handled and replaced in the crevice without making any attempt to escape. Throughout the next 85 days (from November to February) Jaeger revisited the spot at fairly regular intervals. During this time the bird remained

in the rock cranny in an almost dormant state and did not vacate the spot until warmer weather again brought forth the hordes of insects.

This was just the start of a three year study, for in the fall of the next year Jaeger again found the bird in its rock shelter. During the ensuing months his observations and research ranged from taking body temperatures of the sleeping poor-will to unsuccessful endeavors to detect a heartbeat with a medical stethoscope. This hibernation, coma, or dormant sleep, was so deep that a silvered mirror held before its nostrils failed to collect moisture from the bird's breath.

Jaeger's study definitely points to hibernation, something new in the bird world. Perhaps it is not so new to the Hopi Indians whose name for poor-will means "the sleeping one." A Navajo Indian student of Jaeger's when asked where these birds spent the winter, answered, "in the rocks."

Bit by bit the strange life history of this bird is unfolding, baring the secrets of a night voice, a camouflage artist, and a winter sleeper all combined in one.

"The first chick that had hatched became frightened and left the nest. . . ."



From its birth in brackish waters to an adult life on land, fish, birds and mammals prey upon the fiddler crab

Fiddler crabs can raise their eyes which are on the ends of jointed stalks.

By Hugo H. Schroder

RECENTLY while photographing a small fiddler crab colony, I noticed two males come out of their burrows near each other. One went over to the other's front door, he reached out his big claw, and gripped the other male's claw, as if shaking hands with his neighbor. This claw shaking was repeated several times before I moved nearer for a photograph, but I was too late! When I set up my camera for pictures, they stopped their claw gripping. It was the first time I had seen them perform in this way and as long as I watched these two they did not repeat it.

All photographs by the author.



The Fiddler by the Sea

Fiddler crabs are common along the Atlantic and Gulf coasts, especially in Florida.

Fiddlers frequently came cautiously out of their burrows, but when they saw me standing near-by they scurried back out of sight. At the time, it was the rainy season in Florida. After trying for pictures for about half an hour, I finally had to leave because of an approaching storm.

A few days later I visited another fiddler colony where hundreds of crabs occupied an area about 50 feet long, on a mangrove bordered shore. This was a larger and a considerably more compact colony than the other. At first a few bold fiddlers came out, but after a quick look they backed into their holes. I discovered, finally, that if I remained in the area, standing near



several burrows with my camera ready for action, I could eventually get a picture, but much patient waiting was required.

Crabs were scurrying around between the burrows. Numbers were busy "cleaning house." They appeared at their burrow entrances with a small amount of earth, depositing it just outside, then pushing it to one side. After a while, the appearance of the beach began to change radically. What had been smooth sand became pitted with numerous fiddler crab holes. The smoothness of the beach as the tide receded soon became rough as the fiddlers emerged with pellets of earth, depositing their excavations between burrows.

Fiddler crabs live in salt water areas along both the Atlantic and Gulf coasts and along the brackish rivers and sounds in coastal areas. They are particularly abundant in Florida but occur as far north as Cape Cod.

Within each colony there appears to be two kinds of crabs, although they both may be the same species. One of them has a large claw and a small one. This is the male fiddler. The other, the female, has

two small claws, each of the same size.

Watch the crabs as they come out of their burrows and you will notice that the females are busy picking up minute particles of food. This may be dead animals or plants they find outside of the burrows—material which may have been washed up by the sea as it covered the area, and left behind as the water receded.

The female fiddlers have a decided advantage over the males in feeding, for they can use both "hands" for picking up their food. The big claw of the male is not adapted to food gathering, therefore he can use only the smaller claw for this purpose.

Males lift their oversized claws from time to time, opening and closing the pincers as they wave them high in the air. This claw waving has given the fiddler the name of "calling crab," for it is thought that they do this waving to call attention to themselves.

Fishermen call them fiddlers because the big claw is said to resemble a fiddle. When fishermen go out for sheepsheads, they gather a can of fiddler crabs to use for bait.

One claw of the male fiddler crab is much larger than the other. Because of its fancied resemblance to a fiddle, it has given this crab its popular name.



What the male's big claw is used for is anybody's guess. It may be a signal from one male to another; perhaps it is a sexual demonstration, for the male may be trying to attract the attention of the female.

Fiddlers and other beach crabs have a decided advantage over their human neighbors, for they are able to use their eyes to much better advantage. Their eyes are on a stalk that is provided with a joint and an erectile muscle which allows them to be raised or lowered at will. Thus the fiddler appears to have a set of periscopes for better viewing its surroundings. These eye stalks when lowered fit into depressions at the side, thus giving them better protection, particularly when the crabs move in and out of their burrows.

Florida is the home of countless multitudes of fiddler crabs along both coasts. Having warm weather during most of the year, it is possible to find fiddlers in almost every section of coastal regions at any time of the year, wherever they can find a suitable place in which to live. Farther north in regions where there is considerable cold, fiddlers hibernate in their burrows.

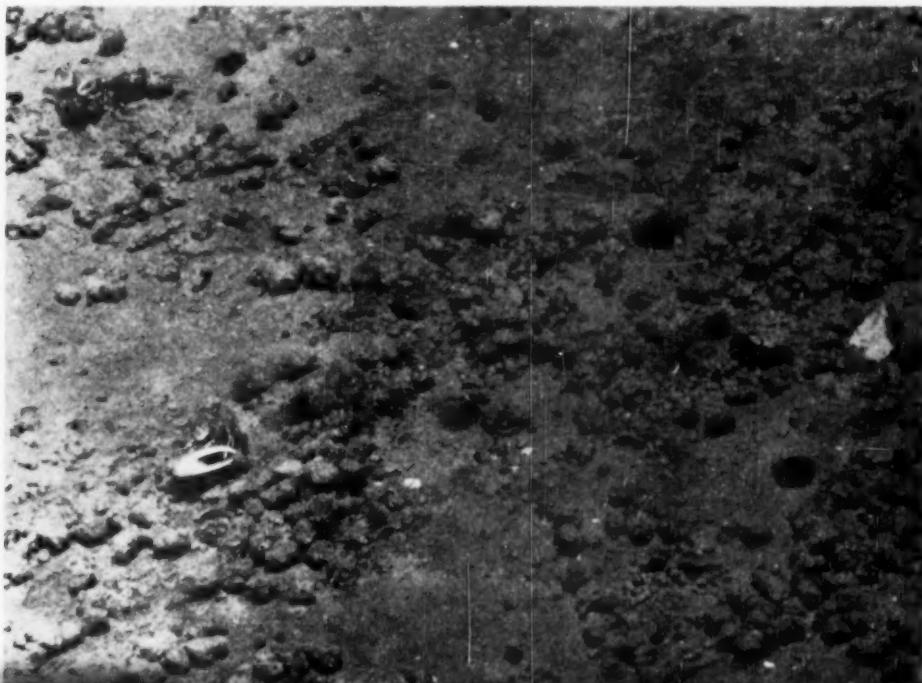
In summer, when fiddler crabs are active, they often come out of their burrows carrying wet sand which they deposit in little pellets on the beach. Along the northern part of the Atlantic coast, fiddler crabs hibernate in their burrows during winter.

There are three species of fiddler crabs, the commonest of which is the sand fiddler, *Uca pugilator*. It prefers sandy areas and lives along our sea coast from Cape Cod to Florida. *Uca pugnax* prefers muddy estuaries and salt marshes and this species could be called the marsh fiddler. It is not as conspicuous in its environment as the sand inhabiting crabs.

A third species, *Uca minax* is the largest, and it might be called the brackish water fiddler, for it is usually found there. It is usually much redder than the other two species and is sometimes called the red-jointed fiddler crab.

Even though the sand fiddler's name of *pugilator* might indicate that they are war-like, they are mostly concerned with getting out of the way when danger threatens. The large claw of the male can be used for defense, but it does not inflict a painful pinch. The pinch of the smaller-clawed female is only a slight nip.

The female lays hundreds of eggs which are attached to her up until the time that they hatch. Hatching occurs about dusk. The female goes to the water's edge to



propel the minute young into the water. The tiny larvae are subjected to a hazardous existence during the time they spend in the open sea.

In the early stage, after hatching, the crab infants swim on the surface of the water. Many are gobbled up there by other sea animals, but the chance for survival is better at the surface than it would be below.

The tiny crab keeps moving actively. It is carried by the tides, back and forth. Feeding on still more minute creatures and plants, it grows in size. At the first molt it changes its appearance. At that time it is quite helpless, until it is free from its former covering. Eyes are now on small stalks. Many babes are swept ashore by the tides and some larval crabs may there provide food for the adult fiddler crabs.

In about a week it molts again, and the third molt takes place after about another week. It is now large enough to be seen by the naked eye. Still another molt sends the little crab to the bottom. With the fifth stage the crab undergoes an altogether different change. In this form it was once thought to be an entirely different creature and was called *Megalops*. In this stage the *Megalops* swims about for almost a month. Then comes the final molt of its larval life. The young crab emerges, thus ending its life in the sea.

No longer can it swim. Now it is a land creature, very small, and helpless. It is a good thing for the young fiddler that it blends with the sand where it lives. Soon the tiny crab molts and again in less than a week comes a second molt. During the first crab stages, both pincers are alike, but after the third molt the males begin to show that one claw is larger than the other.

At this time the eyes begin to function as in the adult, with the eyes on stalks, and the young fiddler lives with its adult neighbors. It feeds among the sands of the beach and digs itself a burrow. When the tide goes out, the fiddler crabs come out of their burrows and return when the tide comes in again. The little fiddler continues to molt from time to time as it grows larger.

With the coming of spring, female fid-

dlers start laying their eggs again. Soon countless numbers of their microscopic offspring will be swimming in the sea.

Life for the fiddler from the time it leaves the egg and goes out to sea is just one hazard after another. First the marine animals

★ NATURE

TOPICS OF THE TIMES

Reprinted from The New York Times, October 3, 1952

Bird Watch Under the Moon

Tonight the moon will be full; scattered across the United States, and in Mexico, Canada and Puerto Rico, bird watchers at some two hundred stations—local weather conditions permitting—will be on the lookout for birds on the wing. Reports from these far-flung volunteers, accumulated during this autumn's nights of bright moonlight, are being sent to Louisiana State University's Museum of Natural History. The zoologists there hope that this first large-scale study of night migrations will add materially to man's knowledge of nocturnal mass bird movements, about which he knows little. Indeed, the truth is that he has learned little about the whole fascinating story of bird migrations beyond the routes of some of the principal flyways and the distances flown by a number of wide-ranging migrants.

Knowledge Recent and Skimpy

It was not until this century that men began to study scientifically the migration of birds. About 40,000 B.C. man was showing sufficient interest in birds to draw pictures of them on the walls of caves; perhaps even then he wondered about the habits of those that disappeared one season and reappeared the next. But as recently as the Middle Ages men believed that in the fall swallows dived into mud along the banks of streams and stayed there until spring's warmth brought them out again. Bird banding made feasible for the first time a scientific approach to bird migration, and while it has been possible to determine, for example, that the European peewit, or green plover, sometimes crosses the Atlantic or that swifts fly from the United States all the way to Peru, still no one knows exactly why birds migrate when they do.

devour it and finally, cranes, herons, raccoons and other land creatures hunt it when they are hungry. With all this destruction of the fiddler crab there never seems to be a noticeable decrease in its population, regardless of how many perish.

Perhaps, like the poor, they shall always be with us. Without them, the coastal marshes would lose a lot of their interest, particularly to those many animals which depend in part upon the multitudinous fiddler crabs for their living.

I N T H E N E W S ★ ★

Back to Glacial Times

There are a number of excellent theories on the "why" of migration, some of them highly complicated. It is possible that bird migrations had their beginnings in the advance and retreat of glaciers; a considerable body of evidence indicates that the length of day determines when birds, which are extraordinarily sensitive to light variations—and to changes in atmospheric pressure and temperature—start their migrations. Yet man constantly is being astounded by the precision displayed by traveling birds, defying scientific analysis.

Bobolinks Move Southward

Birds are migrating during almost all months of the year; those that come early in the spring are the first to leave in the early summer. Right now the bobolink is moving south from Canada and this part of the United States on its leisurely southward journey. It will travel through the Southern States, where it is known as the rice bird, and then fly on to southern Brazil, Uruguay and northern Argentina.

The golden plover is on its way to warmer regions from its summer territory in northern Canada. It flies southeastward to Newfoundland and Labrador, then south across the Atlantic to Bermuda—where, if the weather has been good, it may not even pause—and on to the West Indies. The Pacific golden plover makes a trip no less impressive from the Aleutians to Hawaii. The plovers are far outdistanced by the arctic tern, which nests in the far north; when the sun begins to go below the horizon at midnight the tern starts a flight lasting approximately two months, settling down for the winter (our winter, that is) in the antarctic, making an annual journey of 22,000 miles.

Still, It's Quite a Stunt

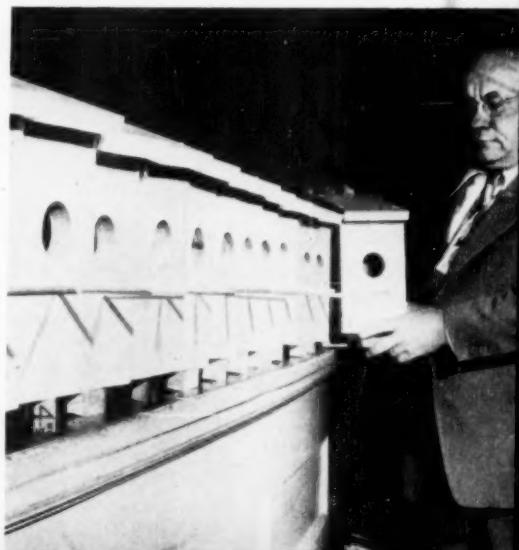
No less an authority than the Encyclopaedia Britannica may say rather condescendingly,

speaking of the return of bluebirds from Southern States to the same nesting box in the North each season, that "there is no essential difference between that performance and the return to the same box after a feeding foray except in the matter of distance . . . but when that distance is—as in the case of the tern—11,000-odd miles, men who fly from point to point only with the aid of extremely complex navigational aids still marvel at the birds' performances. Perhaps tonight, if migrants are flying low, a watcher will be able not only to see them but also to hear the thin calls of some travelers to the banana republics. Good-by, and hurry back!

BIRD HOUSING PROJECT

Photograph courtesy St. Paul Dispatch and Pioneer Press.

John Haag of the St. Paul Audubon Society displays the 100 birdhouses which he built and presented as a surprise to members of the Society who attended the annual dinner. The houses were erected in the St. Paul area as part of the Bluebird Trail project which many Audubon Societies and garden clubs are undertaking as a means of increasing bluebird populations.





Aside from teaching in public schools, "D" gives courses in the museum in bird identification. Photograph by Daphne B. Smith.

Dorothy Snyder — TEACHER

By Barbara Elinore Hayden

"HELLO! I've something to show you!" greeted Dorothy Snyder. She led me to a carton containing a sooty-brown bird, with a tube-nose, black webbed feet and forked tail.

"A petrel?" I asked, hesitatingly.

"Yes, a Leach's!"

The brown-haired woman of medium height, blue eyes and tanned face, has a quick, generous smile. For a while she talked animatedly about the Leach's petrel and its habits. She could speak with authority, for Dorothy Eastman Snyder—in addition to being one of the foremost woman field ornithologists in Massachusetts—

is a bird photographer, a Massachusetts Audubon Society staff lecturer, and author of many articles, most of them about birding. Besides these duties and accomplishments, she is Curator of Natural History at the Peabody Museum, Salem, Massachusetts.

"D," as she prefers to be called, was born in Chicago, Illinois. Her childhood was spent in McKeesport, Pennsylvania, where she received her early schooling—*minus nature study*, she firmly adds. In fact, the first inducement to it was her father's offer of 1¢ a tree for the first 10 trees whose identities she learned, 5¢ the next 10, and 10¢ for the next.

She spent summers during her early teens

at Pearl Beach, Ohio, where a neighbor invited her to join him and his daughter in birdwalks. "D" thereby discovered that the alpha and omega of birdlife are *not* the robin and the crow! And to her hobbies of swimming, canoeing and horseback riding, she promptly added birding.

Later, the Snyder family moved to a home on the edge of open woodlands in Elyria, Ohio. There she found a constant invitation to explore the out-of-doors and happily familiarized herself with many of its flowers, birds and other creatures. Despite some fear of them, she also developed a permanent interest in snakes and an ease in handling them.

When a bird club was formed in Elyria by ornithologist Frank M. Phelps, friend of the noted oologist, Herbert Brandt, "D" became an enthusiastic member. She now considers herself fortunate to have begun birding where she had migrating bay-breasted and blackburnian warblers in her yard, with cerulean warblers and blue-gray gnatcatchers a possibility each spring.

She soon combined photography with birding and joined Mr. and Mrs. Phelps on

birding trips. One trip was to the famous, much-studied bald eagle nest in Vermilion, Ohio. "D" vividly recalls being hauled by rope and pulley to the ladder leading to the permanent blind. As she neared it, the pulley tore loose, and she leaped wildly for the bottom rung, encumbered in her acrobatics by a 10-pound Graflex!

Most notable of their field trips was one to Oscoda County, Michigan, to find and photograph the nesting site of the rare Kirtland's warbler. One of the nests that they watched held a young cowbird, besides the young Kirtland's warblers. As most of the food brought by the parent warblers disappeared down the gullet of the voracious cowbird nestling, "D" killed small insects, and by means of a forked twig fed the young Kirtland's warblers. Her group was the sixth ever to view the nest and young of this bird.

"D" and her family moved to Cape Cod, Massachusetts. Having worked previously with young people in Elyria as instructor of swimming, life-saving, horseback riding, and as a nature councilor at a private camp, she took a position as Girl Reserve

... CURATOR ... NATURALIST

As a curator of natural history, Dorothy Snyder is asked to identify many kinds of animals. Photograph by Eric H. Muller.



For naturalists, vacations are opportunities to spend even longer hours studying birds and other wildlife. Photograph by the author.



Secretary at the Pawtucket, Rhode Island Y.W.C.A.

In 1943 the Massachusetts Audubon Society, Berkshire Museum and Pleasant Valley Sanctuary at Lenox, Massachusetts, pooled their resources to bring the first organized nature study to sixth graders in the schools of Pittsfield and of Berkshire County. This program was to be headed by a nature representative of the three organizations, with headquarters at the Berkshire Museum. For this stimulating and demanding position, Mr. C. Russell Mason, Executive Director of the Massachusetts Audubon Society, appointed Dorothy Snyder.

The basis of nature education was laid in classes where "D" used many visual aids in teaching astronomy, plants, stones, mammals and birds. Begun in 34 classes in 1943, by 1947, with an assistant, classes were held in 19 cities and towns with a total unit attendance of 20,367!

Youngsters eagerly told their nature experiences in class. One lad described the porcupine he had watched carry apples one by one from beneath a tree, only to return finally, roll in them, and waddle off "looking like an apple-pincushion!" One youngster, anxious to feed winter birds suet, as instructed, had just one question: How could he "get the soot out of the chimney?"

Through spring and summer "D's" work centered in the Pleasant Valley Sanctuary where she conducted programs for various visiting camp groups. In 1944 she organized the "Junior Guide Corps" of 12 boys and girls who cleared paths, collected and cared for the "live museum," a popular feature of the sanctuary. "D" spent many Sunday afternoons demonstrating the beauty and harmlessness of its snakes to sanctuary visitors.

A notable exception to teaching only sixth graders was made by instructing a class of retarded children. The results were gratifying and extraordinary in that two boys proved to be among the best nature students in the county. Here, as elsewhere, she found it significant that pupils who found the three R's difficult often excelled in "nature."

In her own words, Berkshire life was "as busy as it was interesting." As Acting Curator of Science in the wartime absence of Bartlett Hendricks, Dorothy Snyder had charge of the Berkshire Museum bird records and compiled a guide to its bird collection.

Between classes, during lunch hours, and on free week-ends, "D" went birding with such ornithologists as Professor Samuel Eliot, the C. Russell Masons, and Ludlow Griscom. From this experience she wrote several articles, including the definitive article, "Birds of Mt. Greylock," reprinted by the Massachusetts Audubon Society.

One of her duties was staff lecturer for the Massachusetts Audubon Society. She also gave lectures for children and adults under the auspices of the Berkshire Museum. Of the many subjects included, the most popular one, which necessitated a repeat performance, was on snakes.

"D" had begun collecting local and Florida snakes and everyone found them fascinating. Their cages were kept in the sunniest place, the living room, and four turtles roamed the kitchen. Her apartment was aptly dubbed "The Reptile House."

Snakes were equally popular in class and "D" was often greeted with "Didja bring any snakes?" She smilingly recalls the "tea party" she gave for two 3-year-old acquaintances, who would hardly touch refreshments so eager were they for her to get "the 'nakes out!"

In 1947, after five years of strenuous and satisfying work, she resigned her Berkshire position and was appointed Assistant Curator of Natural History of the Peabody Museum at Salem, Massachusetts.

The Peabody Museum, with its 150 year history, embraces three fields of study—marine history, ethnology and natural history. Its series of natural history specimens from Essex County is as complete as any that can be found for a similar geographic area in the United States.

Now a full Curator, "D's" office is a fascinating place. Long and narrow, its wall cupboards hold fine specimens of minerals, animal skulls, butterflies and a her-

barium of dried plants dating back almost a century to when Dr. Asa Gray was a museum trustee. Bookcases hold texts that would bring a gleam of envy to the eye of any naturalist. Over her desk hang original Audubon portfolio prints and the mounted head of an albatross caught off Cape Horn in 1896.

Aside from teaching in public schools, "D" gives courses at the museum in bird identification, and has aided in giving a Museum Science Teacher's Course designed to acquaint Salem teachers with museum data. Lecturing on methods of nature teaching at Salem Teacher's College, she demonstrated her original and highly successful visual aid—a "treasure chest." Specimens wrapped in aluminum foil are packed in an authentic sea chest. Numbered cards are distributed, and each lucky pupil takes a gleaming "treasure" from the chest, unwraps and tries to identify it. The never-failing spontaneous comments and questions serve to stimulate enthusiastic class study.

A favorite part of her work is acting as a source of information. She may find anything in her office from a sea-urchin to a hawkmoth, water beetle, or ichneumon fly awaiting identification and a statement from her about its habits and value. A small boy may confront her with a cicada, and examine it under a microscope with wide-eyed wonder as "D" tells him about it. Or an urgent phone call may inquire about anything from what to feed orphaned oriole nestlings to suggested procedure for evicting a family of skunks from beneath a porch.

Her work is not limited to certain hours in the museum, but often continues outside it before and after office hours. A typical year includes intensive birding trips to the Berkshires to see birds found nowhere else in the state; to Cape Cod for oceanic birding, where with Ludlow Griscom and others she once saw 90 per cent of the world's population of American ciders; Martha's Vineyard and Nantucket for migrations and census-taking; and week-end trips to Hawk Mountain, Pennsylvania, to observe migrating hawks and eagles. With

a creditable list of bird records both in the Berkshires and Essex County, "D" is considered the most active field observer in the state.

For naturalists, vacations are eagerly awaited opportunities to spend long, unbroken hours pursuing new birds and flowers, or examining other natural phenomena. Since becoming a curator "D" has spent her vacations birding in Florida and Texas. For 16 days in 1949, from Jacksonville to the Keys, she saw 33,300 birds of 189 species.

Not all of Dorothy Snyder's treasured memories are on so large a scale. Recently she and her friend Kay Tousey persuaded reluctant authorities to let them spend a night on "Little Duck Island" near Mt. Desert, off the coast of Maine. Fogs envelop the island in minutes, isolating it for days and weeks at a time. Arriving in clear weather, they made camp. Then, far from the mainland and civilization, they crawled into sleeping bags, to lie, and watch, and listen.

All about them the air was vibrant with the singing of Leach's petrels, those strange birds that by unique instinct, nest, breed, leave, and return to their young, always in the dark of night. And as they listened, they watched, for out of the star-studded midnight heavens poured forth the brilliant annual spectacle of the Persiad "shooting stars." To climax the occasion, they arose to a shining sun, and as they prepared breakfast, "D" suddenly snatched up her binoculars, shouted to Kay—and recorded Maine's eighth lark sparrow!

Such exciting experiences have afforded her abundant material for articles ranging from the delightful "Random Notes from the Field," published in the *Bulletin of the Massachusetts Audubon Society*, to scientific papers published in *The Auk*. One can hardly state where "D's" work as a Curator of Natural History at the Peabody Museum begins and ends. But with such stimulating experiences and her desire to teach others the necessary appreciation to "go and do likewise," one need not ask why Dorothy Eastman Snyder is a naturalist.

DR. HERBERT R. MILLS



IF EVER a man were truly a bird benefactor it was Herbert R. Mills of Tampa and St. Petersburg, Florida. To bird protection he dedicated his life with whole-hearted devotion. Conservation of wildlife, plants, soil and water, in relation to human progress, was a primary goal in his life. He pursued it with intensity and perseverance.

Observing with distress the declining numbers of ibises, pelicans, egrets and herons frequenting their ancestral rookeries on keys in Tampa Bay, Dr. Mills, though an exceedingly busy pathologist of great distinction, gave abundantly of his time, energy and money to provide warden service for these spectacular nesting colonies of colorful water birds, and to supervision and administration of that service.

He interested a friend, Mr. C. T. Dawkins, in giving Green Key to the National Audubon Society to be maintained as a bird sanctuary. He interested the State of Florida in leasing to the Society the adjacent key, Whiskey Stump, on which he built and equipped quarters for the warden; the U. S. Phosphoric Products Company in leasing the near-by Alafia Banks and another

friend, Mrs. Nina G. Washburn, in leasing Big Bird Key near Terra Ceia.

Both directly and through contributions to the Society he financed the costs of wardens' salaries and equipment. Through generous gifts he insured the continuance of bird protection at these sanctuaries.

He was rewarded by witnessing the restoration of these sites as rookeries of outstanding importance in the conservation of wildlife; by seeing hundreds of thousands of birds again nesting on these keys, and, above all, by observing the development of local popular appreciation of the practical as well as esthetic value of bird protection.

On October 19, 1952, a tablet in his memory was unveiled at a ceremony on Whiskey Stump, attended by members of the immediate family and close associates. In accordance with his wish, his ashes had been placed in a receptacle within the monument. The animated beauty of the scene, in the midst of which this tablet perpetually stands, is a living memorial to the far-seeing efforts of Herbert R. Mills, and will live on in the minds and hearts of his friends.—JOHN H. BAKER



(The sixth in a series of articles about)

YOUR *Wildflower* GARDEN

Cutting off woodlands and draining marshes destroys places where wildflowers grow. Here is what your local Audubon Society can do about it.

Color flower illustrations by Lee Adams.

By Charles E. Mohr

TO many who love the wildflowers, their disappearance from areas where they once were common symbolizes this nation's disregard for our natural resources. Once so abundant that they seemed truly limitless, trailing arbutus, fringed gentian, and many of the choicest orchids and finest lilies have been picked, uprooted or sacrificed to expediency with reckless abandon.

Only when our soil, water, forests, and wildlife have been dangerously depleted has the public become aroused to the need for wise use and intelligent treatment of these resources. And only recently has there been a deeper realization of the problems involved in wildflower conservation.

"Don't pick" has too long been our only advice, our only program for saving the wildflowers. To be sure, the warning against picking rare plants, and the enactment of laws to protect them has had a beneficial effect. And the universal ban against the use of "protected" species, respected by sev-

eral million garden club members, has been of inestimable help.

"What to pick and how to pick" is a more positive approach to the problem. It alerts more persons to the beauty of wildflowers by focusing attention on the abundant daisies, black-eyed susans, goldenrods, violets, and many others which may be picked. It increases understanding of plants, by emphasizing why cutting is better than pulling, why a majority of blossoms must be left to produce seed, why scarce plants are left untouched. It explains that plants protected by law or "No Trespassing" signs must be unmolested. This story is being carried to the schools, scouts, and other groups. It is quite effectively incorporated into Kodachrome slide sets of 20 to 30 slides.

Each year more throughways and dam sites are being planned and housing or industrial areas are being surveyed. Before clearing begins, a little time remains for the rescue of colonies of ferns and wildflowers that face certain destruction. At

The deep blue, bottle-shaped flowers of the closed, or bottle, gentian, *Gentiana andrewsii*, remain almost shut throughout their blooming period. Only the powerful bumblebees seem able to force their way inside these flowers and thus, in their quest for food, accomplish cross-pollination for the plant. The closed gentian is a perennial that grows from southern Canada to Arkansas and east to Georgia.



Look for both the closed and the fringed gentians in meadows, along brooksides, and in wet thickets. The plants bloom at some time within the period from August to November. Photograph by Allan D. Cruickshank.

such times plants may be available in quantities that overwhelm the resources of the individual wildflower gardener. If there is a local Audubon Society or other interested group to take the lead, much can be done. Such a recognized organization can satisfy any legal complications and can secure the cooperation of the scouts and other agencies whose interest and manpower may be invaluable.

If the local group has been farsighted and fortunate enough to have obtained a sanctuary site, a mass transplanting from a condemned area may do much to trans-



form it into a superb wild garden. Generally in a community there will be persons who know enough about soil types, drainage, moisture, light, and other plant requirements to properly supervise any large or small-scale transplanting. And they will probably know that weeds come into freshly turned earth, that scattered branches may keep rodents and dogs from digging up the new plants, and that sharp-edged stone chips planted with the bulbs will protect them from subterranean attack by rodents.

For mere transplanting is not true conservation. If it is done wisely and well the plants will seed themselves or they may be increased by layering, cutting, and root separation. Unless the plants increase, their permanence is in jeopardy.

It is the destruction of whole habitats that threatens wildflowers more than the wanton picking of individual blossoms and



—L. O. Williams

plants, exasperating as that can be. Marshes and bogs are most vulnerable because they can be so easily drained or filled in and they cannot be recreated in any feasible way. Every Audubon Society, and other group which shares similar views, should make an inventory of the choicest wildflowers and wildlife habitats in its area. On the basis of economic, social, and biological facts, which areas will need protection urgently, or in the future? Once the values of an endangered area are recognized, ways of protecting them usually can be found.

For most of us wildflowers are simply a source of personal satisfaction. To the photographer and artist they present a challenge—to capture on film both the obvious beauty of color and form, and the less tangible atmosphere of their habitat. Through lectures and low-cost books, post cards,

One of the best-known of our wild orchids, the moccasin flower, or pink lady's slipper, *Cypripedium acaule*, has pink-red, veiny blossoms that bloom from April in the southern part of their range, to July in the North. It grows from Georgia and Alabama northward to New England, southern Canada, Nova Scotia, and Newfoundland. The two, large, green leaves, growing from the base of each plant, have no stems.



The moccasin flower grows in the dry, acid soil of woodlands, frequently under pine trees, and sometimes in bogs, moss, and in wet woods. Nurseries now raise plants which survive much better than wild, transplanted stock. Photograph by Arthur Palme.

prints, and slides, millions may share the enjoyment of the pictures.

For others, the wildflowers are an incentive to get away from the humdrum, weekday routine, to take a drive, or a walk, to make discoveries—a rare flower, or the first bloom of the season—or an unsuspected blossom in an out-of-the-way corner. But whether in park or sanctuary, meadow or wilderness, wildflowers form an inseparable element of our enjoyment of nature. May they ever be as abundant and near at hand as we need them to be.

We are sometimes depressed by the violence and tragedy we observe in the natural world. It is good to be reminded that there are opportunities for

Seeing Humor in the

By Richard G. Beidleman

THE wildlife community in the cottonwood river bottoms of eastern Colorado bustles winter and summer with the serious business of survival; but on rare occasions, amidst this routine of living, there arises some clash between animal personalities which results in an amusing situation. Every inhabitant perhaps has his particular moment, but when I think back over my own field observations, I find the birds most frequently playing the unwitting role of humorists in this western woodland.

The red-shafted flicker, a common resident of our cottonwood groves, often becomes involved in amusing incidents. During a recent spring I noted a pair of flickers that had established a home in the slanting top branch of a lone cottonwood. On a June morning when one of the pair was off food-getting, leaving the other in the nest cavity, a quarrelsome red-headed woodpecker swooped into the treetop, spied the female flicker looking out of the nest entrance, and immediately flew in to attack. As the startled flicker dodged down into its retreat, the redhead leaned into the hole and took a few vicious pecks at the flicker's head, making the feathers fly. This "sport" continued until the exasperated flicker scrambled out of the nest and chased its smaller antagonist away.

The routine of peck and chase took place time and again. Finally, the red-headed woodpecker withdrew to a near-by cottonwood grove, and I started to meander on, satisfied that the flicker had won the skirmish for her home, but the redhead's capacity for invasion had been greatly underestimated. After a few minutes, this redhead flew back, bringing a companion with him. Apparently a battle strategy had been evolved by these two birds in the near-by grove of trees. One of the red-headed woodpeckers again flew at the flicker in the nest

hole, while its companion sat on an adjacent limb viewing the skirmish. When the harassed flicker finally tumbled out of its nest and chased away the one redhead, the other dropped from its perch, swooped to the flicker's nest and disappeared inside.

All flicker bairings are not destined for an unhappy ending, as the following experience illustrates. Several years ago while walking through a cottonwood river bottom in eastern Colorado, I noticed a red-shafted flicker slowly bobbing his way across the woodland. A sparrow hawk perched atop a tree sighted the flicker and, dropping from its vantage point, flew swiftly after the larger bird. Through the woods they went, the flicker maintaining his leisurely flight, the sparrow hawk speeding after him. Just when it seemed that the little falcon's talons would meet flicker feathers, the woodpecker nonchalantly closed his wings and passed through the crotch of a cottonwood tree. The sparrow

When one of the flickers had gone, a red-headed woodpecker flew to the nesting hole. Photograph of



Lives of Birds



red-headed woodpecker (above) by Lorene Squire; of red-shafted flicker (below) by H. D. Wheeler.

hawk, moving too rapidly to dart through the narrow crotch, was forced to swerve sharply to one side of the trunk after which it quickly disappeared from my sight.

The flicker, I soon discovered, had not only outsmarted his pursuer but had a grandstand seat from which to watch the sparrow hawk's departure. A small branch projected from the tree trunk on the far side of the crotch. On this stub the flicker perched, catching his breath as he surveyed the sparrow hawk's flight.

If this sparrow hawk had been possessed of a desire for vindication, I am sure that he would have enjoyed watching a flicker I observed one mid-November day. This particular woodpecker had sped across an open meadow, ending its flight with an upward swoop into the top of a large cot-

tonwood. Its feet were out for a landing, but the bird's momentum somersaulted him over his intended perch and into the branches beyond, a dilemma as distressing to a flicker as overshooting a field would be to an aviator.

Watching birds fly is always a potential source of anecdotal material. After chuckling over the story of the sparrow hawk that barely avoided collision with the flicker tree, I am always reminded of several birds whose flights fared less successfully.

I had been watching a great horned owl for several months in a deserted heron rookery along one of our Colorado plains streams. Ordinarily, this owl, spotting me from some distance away, would flap silently from his perch and across the river before I could approach closely. One day I caught him off guard. He had left his usual heron nest perch for a cottonwood limb which extended out over an irrigation creek, and our sudden meeting was further enhanced by my arrival from behind his scope of vision. The crackle of dry weeds beneath my feet finally attracted his attention. He quickly turned his squat head and upon seeing me, dropped off his perch and clumsily started flapping his wings. Still glaring at me over his shoulder he flew away up the creek. The owlish look he cast on me was just about his undoing, for with a thud he rammed into a branch extending across his path of flight and only a dexterous maneuvering of wings saved him from a fall into the water below.

The owl isn't the only bird that flies into things. A mallard had started to take off down a straight stretch of plains river. Complacency apparently made him forget the hazards of flight, for, as he triumphantly rose from the stream and started his skyward climb, he ran into a barbed wire fence that spanned the river and was tumbled back down into the water. Undaunted, he regrouped his wits and immediately launched into a successful take-off.

Flying mallards also bump into trees accidentally. I was cautiously approaching a small pond where ducks often bed. As I peeped at them above the high bank, several mallards on the distant shore saw me

and flew away into the woods. Seeing no further need for stealth, I suddenly stood up, just as a third mallard, with a swish of wings, flew up over the edge of the bank square into my face! Thrashing the air with feet, wings and tail, the duck made a right turn in front of my eyes and ploughed into the outer branches of a nearby willow, narrowly missing the trunk by inches.

If properly approached, the mallard often proves to be more a bird of curiosity than caution. On several occasions I have craned my neck up over a river or creek bank beyond which I knew a mallard was sitting, to find the duck stretching up on its legs and sticking out its long neck for an inquisitive look at me. This exchange of stares might last several seconds, until the mallard satisfied its curiosity and would fly off down the river.

Speaking of mallards, this common American duck doesn't necessarily restrict its travel to the air. During a recent summer I was amused to see these waterfowl taking to water, like many a young boy, seemingly for the pure enjoyment of it. The ducks were along a stretch of plains river bottom where there was smooth water downstream below a series of mild rapids. Starting out in the calm pool, the birds would flap and scramble their way upstream through the rocky rapids, then they would turn about, and bobbing vigorously or even being tumbled under water, they rode the current back down into the tranquil section of the creek. This was a pastime of youngsters and adults alike.

Like human beings, birds sometimes have sociological conflicts as a result of living with members of their own or of other species. During the winter, in many areas of the United States, the tramp through the woods or city park will notice large congregations of birds of different species which feed and travel together day after day. Like some fraternal orders, these groups achieve a certain membership and, at times, seem to resent intrusion by outsiders. I am particularly reminded of one of these winter species association groups in our local cemetery. The group was made

up of 60 pink-sided juncos, 10 Oregon juncos, several gray-headed and slate-colored juncos, mountain chickadees, eastern goldfinches and a white-winged junco, all scattered about on the ground among the tombstones feeding on seeds. There were plenty of seeds, yet every time a lone visiting tree sparrow fluttered down to join the group, one of the juncos would drive it away. This incident seemed of special interest because in other areas the tree sparrows and juncos mix quite amicably.

What we tell our children about choosing a mate, the red-winged blackbirds learn for themselves. On a mild afternoon in late March the willows and cottonwoods rising above a thawing creek were filled with birds. About 50 male red-wings that had spent a very enjoyable and uncomplicated winter in the river bottom sat in one treetop while across the stream a flock of more than 100 female red-wings crowded in a budding willow. The sparrow-colored female red-wings probably represented the first females which the males had seen for months. The females, squawking and bustling around among themselves, paid little attention to the males across the stream, but at intervals a single male would leave his flock, dart quickly across the creek, scrutinize the females at close hand, then speed back to his fellows. This went on

Let a coyote appear and the nearest magpie will set up an outcry. Photograph of coyote (right) by Joe Van Wormer; of American magpie (below) by Allan D. Cruickshank.



for several minutes. Before the males could reach a decision on a further course of action, the flock of females suddenly flew up in a boiling cloud resembling a swarm of bees and continued their northward flight, leaving the males with a two weeks' wait for other females to arrive from the South.

During the spring breeding season, birds associated in winter flocks disappear before individual birds that have established nesting and feeding territories. Many birds feel the responsibility for their territories so strongly that they will fight viciously to defend them. Other individuals, like the red-tailed hawk I saw, would like to defend them, but cannot become courageous or foolhardy enough to do so.

This western red-tail had a particular section of river bottom to himself for a number of months. He knew where all of the best perching trees were, and could pick up a cottontail rabbit to feed upon at a moment's notice. It must have been upsetting to him when his domain was invaded one chilly March morning by a young golden eagle. The eagle leisurely flew into the red-tail's territory from the west, about a hundred feet above the ground, made a broad circle over a grove of cottonwoods, glided out across the open fields

and a marsh, and finally disappeared over a hill to the southeast. And the red-tailed hawk? He was there on the scene from the moment the eagle made entry, but he tagged along meekly behind the larger bird at a safe distance, with never a scold nor cry. He followed the eagle until it had passed the marsh, then the red-tail returned to his favorite perch atop a dead cottonwood.

There was no attempt by the red-tailed hawk to bluff the eagle, but the same certainly cannot be said for the garrulous magpies and crows of our western plains river bottoms. Let a hawk, owl, coyote, or raccoon put in an appearance, and the closest crow or magpie will immediately set up a woods-resounding harangue, guaranteed to bring fellow crows and magpies from far and wide. While the protest is being voiced, the crow or magpie hops about from branch to branch in the vicinity of the predator, gradually being joined by his summoned companions. One February morning I saw an owl atop one of our Colorado river bottom cottonwoods surrounded by 12 cawing and cavorting crows. Their outcries brought three additional crows that joined in the verbal attack. Annoyed, the horned owl finally took off and flew some distance away, with the 15 noisy crows strung out behind him. A few minutes later when I saw the owl again, he was returning to his original perch trailing a retinue of 20 crows.

Although both crows and magpies will sound the alarm, the magpies usually wait until a safe number of crows gather around the predator before they join in the attack. Their morale apparently bolstered by the size and numbers of their allies, the magpies then commence an even more daring and spirited assault than that of the crows. I was amused on one occasion to see such a build-up of crow-magpie forces around a horned owl. With the crows backing them up at a safe distance, the magpies formed a closed circle about the owl, with one unusually audacious magpie taking a perch so near above the persecuted predator that his long tail feathers periodically brushed the face of the owl. After several minutes of owl-baiting, the crows tired of the fun

Continued on Page 399



The President

By John H. Baker



reports to you

President of the National Audubon Society

Flamingo Motif

BOB ALLEN, who has been devoting his time to the study of the American flamingo in the Caribbean, sends the happy report that some 6,300 young flamingos were successfully raised during the 1952 nesting season; that of these, some 4,700 were produced in the Bahamas, principally at Inagua. With him on his latest trip to Inagua was Stephen F. Briggs, who obtained the most marvelous color motion pictures of flamingos that have ever been taken. The showing of these pictures will be a feature event at the Annual Dinner of the Society at convention-time, November 18. Both men have recently been at the International Union for the Protection of Nature meeting at Caracas, Venezuela, where they learned that there were some 600 flamingo nests this year at Bonaire in the Dutch Antilles, but that the nests were drowned out by heavy rains and no young raised; that no flamingos had nested for quite a few years at La Orchila or Los Roques, islands off the Venezuelan coast. Bob writes, "The Dutch are doing a fine job of protecting the Bonaire birds, following complete desertion of the colony in 1943-46, after harrying by military planes, both Dutch and American." Flamingos had a successful nesting season in Yucatan and the Society has again enjoyed the finest support from the Senors Roche of Merida, who own and administer the lands where the birds nest. You will remember that a year ago heavy rains and a hurricane prevented the raising of any young flamingos in either Inagua, Bahamas or Yucatan, so we must count the 1952 season as relatively a great success. This is in great measure due to the provision of warden service at the nesting locations.

Whooping Crane Reports

Newspapers this summer widely published an item to the effect that the nesting grounds of the whooping crane had been discovered in northwest Canada. Unfortunately this was not true, though flyway biologist Bob Smith of the Fish and Wildlife Service had sighted two individual whooping cranes some 20 miles apart on July 11-12. He saw, however, no evidence of nesting. A month later there was a report, not yet confirmed, but seemingly reliable, of the observation of tracks of a pair of adults and one young, though the birds themselves were not observed. Undoubtedly the U. S. Fish and Wildlife Service, the Dominion Wildlife Service and your Society will join in a special effort in 1953 to determine whether or not whooping cranes are then nesting in the general vicinity of the above observations.

A factual yet very fascinating report on the whooping crane has been just published by your Society. It summarizes the findings and conclusions of Bob Allen and hundreds of invaluable cooperators who, through the years beginning in 1945, have sought all available facts with regard to the life history of the whooping crane, and conclusions as to measures which may well be taken to further the chances of survival of this magnificent species. The report is good reading. It is highly recommended. It may be obtained through the Service Department.

Duck Regulations

The moisture conditions on the bulk of the waterfowl nesting grounds were very favorable this year. In the light of the reports as to hatching success, the Fish and Wildlife Service decided to issue regula-

tions, for the 1952-53 hunting season, that grant a 10-day extension of season in each of the four flyways. Other changes were of relatively minor consequence. In general, the position of your Society is that, in view of the official report of an increase of approximately 45 per cent in the kill of waterfowl in 1951, as compared with 1950 (from 21,198,487 to 30,655,272), the Government seems unduly lenient in substantially increasing hunting opportunity in the face of chance that the next breeding season may be highly unsuccessful, and that it will be faced with a situation, then or later, in which it must recognize that the kill will have cut into essential reserves, let alone surplus. It seems to the Society that it would be wiser to try to stabilize the amount of hunting opportunity and kill, rather than to be a party to drastic fluctuations therein.

Wetland Drainage

In his speech at the North American Wildlife Conference last March, Albert M. Day, Director of the Fish and Wildlife Service, stated, among other things, "For waterfowl, the long-range view is not at all optimistic. . . . Increased agricultural pressures, spurred by Government benefits, will undoubtedly continue to sap lifegiving waters from the natural marshes in the agricultural and coastal states. . . . Take California, for example. There the great Central Valley originally contained about 6,200,000 acres of natural marsh and constituted the wintering grounds for a large segment of the birds of the entire Pacific Flyway. During the past 50 years, more than 90 per cent of this natural habitat has been reclaimed for agricultural uses. . . . High prices for cotton and rice are now converting even this small remnant of natural habitat into irrigated fields. . . . Conservation interests must never relax if waterfowl habitat is to be saved. Unless we are successful, I predict that it will not be too many years before the annual arguments about opening days, length of seasons and bag limits will be of little or no importance. There will be nothing to regulate."

At a recent meeting the Wisconsin Conservation Congress passed a resolution from which we quote in part. "Whereas the new chief of the U. S. Soil Conservation Service told the National Farm Institute at Des Moines, on February 15, 1952, that 'along the East Coast and Gulf States there are at least 10 million acres of swampland that could be drained and put into production' and 'on hundreds of thousands of farms throughout the country there are corners of patches of idle wetland, often several acres in size, that could be drained. . . .' Now therefore, be it resolved that there should be initiated a program that will eliminate or curtail drainage subsidies now in effect, and that will inaugurate a system of subsidies for the restoration and maintenance of marshlands and pothole areas throughout the country." We doubt whether copying, for conservation purposes, the seemingly unsound subsidy program would be sound policy, but we do believe that the American people, in their own best interest, would be wise to bring a halt to most of the proposed wetland drainage.

Klamath Basin Example

There are four wildlife refuges administered by the Fish and Wildlife Service in this basin on the California-Oregon line. It is estimated that 90 per cent of the some 19,000,000 waterfowl in the Pacific Flyway use these refuges at one time or another each year and that during the late fall and winter season there are not less than 3,000,000 of them there at any given time. Truly, it is a bottleneck for waterfowl in that flyway.

These lands were withdrawn for reclamation purposes early in this century. The wildlife refuges were later superimposed on those withdrawals. The Bureau of Reclamation has steadily moved in, reducing the size of the refuges and converting portions to agricultural use, first on a cash-rental basis under its administration, and then on a homesteading basis. Now the time has arrived when, if those refuges are to continue, there must be a halt to further agricultural encroachment. This calls for

Continued on Page 392



The beauty of Oregon's famous national park is known throughout the world. Few, except naturalists, know the delight of

Watching Wildlife at Crater Lake

By Paul Shepard, Jr.

FROM beneath the great black rock of *Llao* two graceful light-colored birds sped out over the cyanic blue of Crater Lake. Long, pointed wings propelled them swiftly and as they circled over the water, hunger cries of immature prairie falcons drifted 2,000 feet to the top of the rock. Then the birds vanished into the hemlocks along the shoreline and the only audible sound was the groaning wind. On this crest of the Oregon Cascade Mountains, winds blast the white-bark pine into grotesque shapes and tear at the sulfur flowers and lupines clinging to the pumice slopes. At these high altitudes, life has a desperate poignancy.

Crater Lake, deepest in America, is serene, but its peace and beauty are born of past violence. The crater, or more exactly the *cauldera*, is the bowl of a lake of 20 square miles, 1,996 feet deep. Once, here was a volcanic mountain, rivaling Mt. Rainier in size. Its earth-shaking eruptions alternated with long periods of inactivity. When erupting, Mount Mazama's outpourings were partially its own body and the mountain was gradually undermined until, about 5,500 years ago, its crown collapsed into the cavity beneath. Seventeen



Clark's nutcracker is a familiar bird near the lodge and campground. Photograph by H. D. Wheeler.

cubic miles of mountain vanished, leaving a pit almost 4,000 feet deep.

In the mountain's death agony, "glowing avalanches" of superheated gaseous materials rushed down the mountainside for 35 miles, burying forest communities under white-hot, ashy deposits. A frothy form of lava was blasted into the air, where it solidified as pumice stone, and fell. Tons of the material floated over the earth as dust. Some of the stones fell in the state of Washington, 100 miles away. On the leeward slopes of Mount Mazama and the sides of near-by mountains, pumice de-



The dipper, or water ouzel, is common along Crater Lake streams. Photograph by Russell T. Congdon.

posits are hundreds of feet deep. In level places it forms deserts, stoutly resisting soil-building vegetation. At The Pinnacles it has eroded, leaving weird towers where mountain bluebirds find cavities to nest.

The Klamath Indians undoubtedly watched the destruction of Mount Mazama with dread. Archaeologists from Oregon University have uncovered campsites under layers of volcanic ash. Legends indicate that many were killed by a rain of fire from the sky. The mountain was the battleground of the gods, where *Llao* of the lower world emerged from a fiery opening to challenge *Skell*, god of the woods and fields. After a long and teetering struggle, *Llao* was defeated and his body cast to his subjects, the scorpions, worms and fishes. Thinking it was *Skell*, they fell to and began to devour it. When nothing remained but the head, the underworld creatures recognized their own master, and their sorrow was such that they burst into tears. Their weeping quenched the fires and gradually filled the great hole, creating Crater Lake. On the sea of tears floated *Llao*'s head, known today as Wizard Island.

A party of prospectors, led by John W. Hillman, stumbled onto Crater Lake in 1863, while searching for the "Lost Cabin Gold Mine." It is argued that Hillman's

mount, a white mule, may have seen the lake first, but Hillman was certainly the first white man to do so. Senator William Gladstone Steel, impressed by the lake's beauty, worked for many years to have the area preserved, and President Cleveland proclaimed it withdrawn from private claim in 1886. Congress, under the leadership of Theodore Roosevelt, made it a national park in 1902.

A raw geology is of paramount interest on the mountain. The sheer walls of the *cauldron* are a "picture story" in mountain building. Lava flows alternate with glacial debris, cinders and ash. Crevices where lava upwelled remain as dikes, forming the Devil's Backbone and the Phantom Ship. Hot gasses tinted the walls ruddy colors, and the last volcanic activity created Wizard Island and sealed off or melted the jumbled mountain wreckage that is now the floor of Crater Lake.

A resident park naturalist is aided by ranger-naturalists in interpreting the park to visitors through guided tours, an information building, the Sinnott Memorial Building, and evening talks in the lodge and community house. The park's only hotel is Crater Lake Lodge, on the rim of the *cauldron*. These buildings, along with housekeeping cabins, a store, campground,

cafeteria and ranger station, constitute the "rim village." In the park are three additional campgrounds and a filling station. A three-quarter mile hike down the lake trail brings the visitor to the boat landing, where a launch departs on tours around the lake.²

The park lies in south-central Oregon, embraced on three sides by the Rogue River National Forest, and on the north by the Deschutes and Umpqua National Forests. The Rogue's headwaters are a spring in the park, probably seepage from Crater Lake. Medford, Oregon, is 80 miles east on Highway 62. Bend is 90 miles north, and Klamath Falls is 60 miles south. Both are on Highway 97. Northwest of the park, over the heart of the Cascades, are Eugene, 221 miles away, and Portland, 262 miles, on Highways 28 and 58. San Francisco is 454 bus miles south of Crater Lake Lodge.

The 250 square miles of park offer a variety of life, from the California gulls that gang up to steal frogs from aristocratic egrets in the lush margins of the Klamath Valley, to an unheralded hawk migration passing the 8,900 foot heights of Mount Scott in early fall.

Four major plant communities are within park boundaries. Visitors approaching from the west and south run the gamut from Douglas fir to white-bark pine, passing through areas of ponderosa pine, lodge-

pole pine, mountain hemlock, and their associates. Sugar pines reach splendid proportions and alpine firs form stands of dignified spires. Altogether, 570 plants are recorded, 83 birds (excluding many species of waterfowl that probably pause occasionally on the lake), 44 mammals, 3 frogs, 2 toads, 2 salamanders, 2 lizards, and the garter snake.

Along the rim of the *cauldera*, above 7,000 feet, on the wintry heads of Mount Scott, Llao Rock, Applegate Peak and Mount Garfield, there are bitterly cold winds and few plants. The infrequency of birds attests to the frugality of the surroundings. Seed-eaters predominate with some mobile, meat-eating and omnivorous birds and mammals also present.

The swift and intrepid falcons are appropriate to the atmosphere of the rim. Nesting in the face of Llao Rocks they are in accord with an austere environment. One August day, an immature falcon lit upon a mountain hemlock near the information building on the rim. A crowd soon gathered to gaze at the light-colored hawk. A ranger-naturalist helped identify the bird, which obligingly posed before knifing down over the rim.

A single meadowlark visited the rim near Crater Lake Lodge in the summer of 1949. This solitary visitor probably found few suitable ground insects, and was gone the following day. In the valleys less than 15

Crater Lake National Park offers a variety of birds—from California gulls in the Klamath Valley, to hawks migrating past Mount Scott in early fall. Photograph, courtesy Oregon State Highway Commission.



miles away these birds are fairly common.

Notable along the rim are ravens, which fit the idea of fiery upheavals and gods battling at the gateway to the earth's interior. Ravens have been interwoven in the mystic and spiritual part of man's culture for hundreds of years. As they make periodic flights past Crater Lake Lodge their large heads and bills give them a short-necked appearance. The call is hoarse and uncrowlike, and they fly with deliberate dignity and much gliding. The raven seems to enjoy flight and seclusion more than his cousin, the crow.

There are no crows near the rim of Mount Mazama, but their natural place is filled by a high-altitude relative, the Clark's nutcracker. It is shy in most of its range (above 5,000 feet) but sufficiently tame near the lodge and campground to be thoroughly enjoyed by visitors. Its flashing gray, white and black are trademarks of the automobile parking area. People, flushing nutcrackers from the drinking fountain, are curious to know what "that bird" is. "That bird" has become a sobriquet of park naturalists for the Clark's nutcracker.

The nutcrackers here have become tame because of their liking for peanuts. Like their corvine relatives, they are opportunists, and have moved in on the handouts intended for the golden-mantled ground squirrel. This beautifully-marked rodent is tame along the rim walk and eats readily from people's hands. Strenuous competition by the nutcrackers keeps the little squirrels running to unload their cheek pouches in their dens and to return to the offering before the sack is empty.

The nutcracker is a hardy, noisy, year-round resident at treeline. Its heavy beak is a perfect chisel to open the tight cones of the mountain hemlock and gouge out the seeds. Local birds spend the whole year on Mount Mazama, where there is often 70 feet of total snowfall, and, during one year, 400 feet. While other birds retreat down the mountainside to spend the winter, "that bird" not only remains but begins to nest in February or March—five months before all the snow is cleared from

the rim drive so that traffic can encircle the lake. The young nutcrackers follow the parents all summer long, pressing them for food with strident screams, gulping their food with crow-like noises, and crying for more. One old bird, apparently exasperated, poked a stick into one of the youngster's persistently yawning mouth.

Man has attracted unusual and unnatural concentrations of nutcrackers to such places as the rim at Crater Lake. The nutcracker congregation dominates the ubiquitous Oregon jay, a subspecies of the Canada jay, or "camp robber." The Oregon jay inhabits most of the park, especially around campgrounds, but gives way to the nutcracker in the competition at the rim.

From the top of Mount Garfield, about a mile from Crater Lake Lodge, the lake can be seen at its best. Mount Garfield (8,060 feet) is not as high as Mount Scott (8,900 feet), but may support the park's principal concentration of gray-crowned rosy finches. These reddish sparrows are known to nest on Mount Garfield and are occasionally seen on other peaks around the lake. The searcher for rosy finches often gets only a chirp and a flash of brown as the finch darts over a precipice, but sometimes he may approach within a few feet of them as they feed. Their summer home is usually above timberline, but none of the park meets this requirement. The white-bark pine, found only in the *cauldera* rim, is also typically a subarctic species.

Along the lower parts of the rim, one may see the Oregon junco, whose clinking trill is heard most of the summer, and Cassin's purple finch, which bounds high over the hemlocks along with pine siskins, much like the goldfinch does in the East.

Occasionally, a cormorant, pelican, duck, or more often, some gulls alight on the surface of Crater Lake. There is little food for any of these birds. The water on which they rest is purer than the drinking water of most cities. The lake is so new (possibly less than 1,000 years), and deep (1,500 feet average), and cold (39 degrees except at the surface), that it supports little life. No streams flow into it. It is so clear that green

mosses live at a depth of 400 feet. The lake, at 6,040 feet above sea level, receives water only from rain and snow falling into the *cauldera*. For a while, a family of cormorants resided on the masts of the Phantom Ship, the smaller of the lake's two islands, but a lack of food has discouraged these birds and they have gone where fish are more plentiful.

The lake seldom freezes because of its immense volume. Its surface is believed to have been solid in 1926 for a short time. In February, 1949, park naturalist George C. Ruhle, a keen ornithologist, and acting chief ranger Duane S. Fitzgerald made a hazardous descent to the frozen surface of the lake carrying snowshoes strapped to their backs. The two veteran mountaineers hiked to Wizard Island, making ice and snow measurements.

Before leaving the rim, the observer may see other birds of the summer. The olive-sided flycatcher, western robin, and mountain bluebird eke out a living on insects. An occasional sparrow hawk may be seen.

On the outside of the mountain, without summer rain, flowering plants huddle about the springs and watering places. A few hardy herbs and shrubs cling to the pumice deserts, but gay and delicate planks bloom profusely where water seeps from the mountain. These meadows shine with clumps of pink, monkey flowers and fields of lavender, shooting stars. Buttercups, columbines,

elephant's head, crimson, fox fire, and white violets mingle their color around the wet spots. The rufous hummingbird is common here, and the calliope also feeds on tiny insects and the nectar of monkey flowers. A large rodent, the mountain beaver, digs muddy burrows and makes piles of plant stems, cutting each piece the right length for storage. Lincoln sparrows sing from the boggiest areas.

The dipper, or water ouzel, is common at the springs and streams. An intruder is often ignored while the plump little birds dive into the rapids for food. Audubon's warbler is everywhere excepting on the mountain tops, and the western wood pewee, mountain chickadee, lazuli bunting, Williamson's sapsucker, red-shafted flicker, hairy woodpecker and Steller's jay, live here in the forest. The green-backed goldfinch and Macgillivray's and orange-crowned warblers inhabit the willows, manzanitas, and other brushy sites.

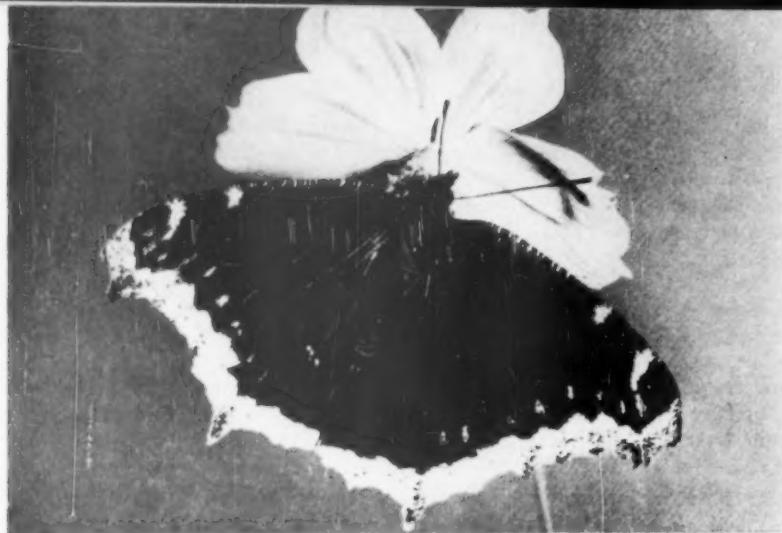
The western red-tailed hawk nests in Munson Valley near park headquarters. The young frequent the area into July, bleating for food and drawing the outraged attention of the flashing western tanagers, a host of thrushes, and other songbirds. The immature red-tails wander down to the Klamath Valley where they sit trustingly on fence posts along the road, watching for meadow mice.

The jagged talus slopes, in the steeper

Continued on Page 393

The hunger cries of young prairie falcons drift upward from the rocky mountain slopes. Photograph by Alfred M. Bailey and Robert J. Niedrach.





The mourning cloak butterfly is a creature of parks and woodlands, but its caterpillar may live on willows in open marshes. Photograph by Hal H. Harrison.

WHEN IS AN ANIMAL RARE?

The rarity of insects, like certain prices, may be subject to change without notice

By Cyril E. Abbott*

IMPLICIT in the many letters I have received concerning the rarity of insects is the question: Does the fact that an insect is common only in certain places mean that it is rare? Before one can answer that, he must recognize that it is really part of the larger question: What are the relationships between the general distribution of an insect and its local occurrence?

If an insect is found only in a certain area because of limiting factors elsewhere, we cannot say that the animal is rare. If, on the other hand, over a wide geographical area, conditions are favorable for a species which is *not* widely distributed, we must conclude that the species is uncommon.

Every species of animal or plant survives under certain conditions of temperature, moisture, light, available food, and other elements that influence or control its dis-

tribution. The required conditions are somewhat different for every species. If several, or more often only one, of the factors favorable to it are lacking, the species concerned may not be able to exist within a region. For example, orchids do not grow in deserts because moisture is a "limiting factor," although there are places in a desert where all other of its living requirements are present. A case more to the point is that of the four-spotted anopheles mosquito (*Anopheles quadrimaculatus*) of the southern United States. The insect is never found north of about the latitude of Columbus, Ohio, the accepted reason being that the larval mosquito, or "wiggler," cannot survive for long—or at least it does not develop—in water of a temperature below 70 degrees Fahrenheit. A related species, *Anopheles punctipennis*, since it can endure colder water, lives farther north.

The factors which limit the distribution of an animal are not always clear. This is especially true of the falcate orange-tip

* Author of the article, "Rare Insects," *Audubon Magazine*, March-April, 1951. This article aroused considerable interest and comment from readers.

butterfly, *Euchloe genutia*. The geographic distribution of this creature is supposed to include all of the eastern United States, east of the Rocky Mountains, yet, one finds the insect only very locally. I have found it in Indiana and in Arkansas, but not in the intermediate region, although it is possible that it may be found at points between. It has been collected in every state south of Lake Michigan and east of the Mississippi River, but always at widely separated places. No one seems to have a reasonable explanation for this spotty distribution of *Euchloe*. Though it is often considered alpine (a species of mountain summits and cool, northern regions) I have found it at low altitudes in Arkansas, in hot weather. Food may have something to do with the matter, yet, this is difficult to understand because the caterpillar, or larval form, feeds on a wide variety of cresses and mustards.

The case of the falcate orange-tip illustrates, incidentally, that localized animal populations do not necessarily indicate rarity. This butterfly is certainly not rare; its numbers are simply concentrated in limited areas within its wide range.

Some animals are so selective about their food that their distribution is restricted to where their favored food plant grows, but this is true of only a very few insects. The Chinese silkworm, to be sure, thrives only upon leaves of the white mulberry, but this is almost unique among insects. Even plant-feeding species are usually capable of living on several different kinds of plants, though some tend to feed upon one species where it is common. Such a case is that of the pestiferous Colorado potato beetle, which eats potato plants and causes great damage to them where they are grown in great numbers. It will also feed on tomatoes, eggplant, and in fact almost any member of the nightshade family to which the potato belongs. Some carnivorous insects are selective in their food habits, but many are not. And there are insects, ants for example, which will eat both plants and animals.

The particular locality in which an insect is found may be the result of its habits, and these in turn may depend upon the

physical limitations of the animal itself. Early in life I learned that the blackwing (*Agrius*), a beautiful dragonfly, is never found flying over large, open bodies of water, but is confined to woodland pools or small streams that meander through willows. The blackwing is not a strong flier; in the open it would be exposed to many enemies. It probably "feels safe," instinctively, only in the shaded recesses of the woods. Similarly, certain caddicefly larvae, which make tubes entirely of small stones, are found, as one would expect, only in brooks with sandy bottoms.

The local distribution or habitat of an adult insect also may be somewhat different from that of its young. Although the cater-

Give a Million Thrills



33
BUSHNELL
MODELS
\$99.50* to \$125*
CONVENIENT TERMS

A Few of Many Quality Features:

- Achromatic Color Corrected Optics
- Newest Featherlight Construction
- Sure Grip Design
- Lifetime Service & Repair Plan
- Triple Tested by U.S. Optical Laboratory, Inc.

TRY ANY MODEL FREE FOR 30 DAYS!

7X, Palm Pocket	\$19.50*
8X, 30-mm.	\$42.50*
8X, 46-mm.	\$54.50*

All Prices Include Gen. Leather Case and Carrying Straps

NAME OF LOCAL DEALER ON REQUEST



ALL 3 FREE!

Write Today For:
1. "How to Select Binoculars" 14 page book.
2. Gift Catalog, illustrates Models 3X to 16X.
3. Binocular Rating Chart.

CLIP & MAIL TODAY

BUSHNELL OPTICAL CORP. OF AMERICA, Dept. J 51
Bushnell Building, Pasadena 1, California

Rush postage - without obligation FREE Chart, Catalog & Book
Rush Binocular Model For 30 Day Free Trial
Enclosed find Check Money Order
*Add usual 20% Fed. Tax (\$2.00 deposit on C.O.D. X)

Name _____
Address _____
City _____ Zone _____

pillars of the mourning cloak butterfly are often found on willows in open marshes, the butterfly itself is seldom seen there. Evidently the female only stops long enough to lay her eggs, and the emerging butterflies do not linger long in the marshland. The adult mourning cloak is a creature of lawns, parks, and open woodlands, where it flutters slowly between trees or rests upon a sunny place on the forest floor. The fact remains that the mourning cloak, though she may visit a marsh to lay eggs, does not, like the fritillary butterflies, revel in hot, open, sunny places.

A person without experience in collecting insects in a given area is often astonished at the number of curious, unfamiliar ones in a private or public collection. But if he begins to collect himself, in the same area, he is equally astonished to find how many insects, once unknown to him, are relatively common. This is because he gradually learns *where* and *when* to look for

species which he has reason to suspect are present. Yet even the experienced collector is sometimes deceived. Near my boyhood home, where I collected insects as a youth, we thought the little metal-mark butterfly a rarity until we discovered just one little park area where it was common.

One may well ask: "Is rarity, then, simply a matter of experience?" Largely, yes, but that does not invalidate the conclusion that an insect is rare, providing that it is based upon the experience of a large number of experienced collectors.

After all, we make very free use of the concept of species or "kind" of plant or animal, despite the fact that those who study such matters in detail are not at all in agreement as to just what we mean by the term. The same is true of a rarity. It is a *comparative* term, subject, like certain prices to "change without notice." We can only define it, as we do so many other matters, through experience.

THE WHITE-TAILED DEER—*Continued from Page 353*

the thermometer dipped below zero, they stayed away, sometimes for several days. Those days they took shelter back in the woods under the spruces and balsam firs, whose lower branches were caught in the deep snows and formed snug circular tents around the trunks. There, underneath, the snow was tramped hard by the deer's hoofs. It was here, too, that I sometimes surprised them bedded down in the snow, once the two together just beyond the brow of the hill, but more often a little apart, and always on a small elevation with a view commanding the surrounding country. Almost before I saw them, they were gone, arisen on knees and hind legs in one motion, to cast themselves off and away in a giant first leap. And only the steaming hollow where they had lain, scooped out by their body heat, remained to tell that they had really been there.

One day, blood-curdling yelpings cut sharply and grimly through the dawn silence. The next instant a deer in a wild panic crashed through branches and bushes down the slope in front of the Loghouse.

Another raced across the spring and took the highway like a broad ditch almost without the touch of a hoof. I got my snow-shoes on fast and ran back into the woods to see what was happening. And there in the snow and in the gathering light I pieced together the story of that dawn.

This morning the timber wolves whose $5\frac{1}{2}$ -inch tracks I had measured on the lake only a short while ago had their day among the deer back of the Loghouse. I saw where one wolf had come upon the standing deer and sent them racing for their lives in all directions. I saw the evidence of tight pursuit between cloven hoofs and padded feet. I followed it and some time later I came upon the end far out on High Point.

It was all over, all finished. Death feeds upon life and life upon death, and this is the law. Only two deer were down, one, then a little farther on another, hamstrung, then stumbling and falling in their tracks. For many a day a few wolves and at least one fox fed undisturbed and well upon these two and sought no other prey. When

they had finished, there was nothing left save tufts of hairs scattered about for the birds to use in their nests, come springtime. There was no carnage. It left to herself nature does clean work, and seldom exacts the penalty of prolonged suffering.

The snow was gone and the sun beat down upon the warming fragrant earth. On a sunny slope I saw two deer. One of them threw up his head and looked at me as if recognizing something it was used to seeing, then continued his browsing. I could not mistake that doe nor the little gray buck escorting her. And, inconsequent as our affections make us, I could not suppress my relief knowing that just these two were the ones which escaped that fatal dawn.

The following winter only the doe returned to the feeding place she remembered, but she was not alone. Two small bucks accompanied her. They had lost their spots but by looks and behavior clearly marked themselves as none other than the doe's twin fawns born early last spring. For there is no loss, no end, only a change, and all shall profit thereby.



An Ideal Christmas Gift
Endorsed By National Audubon Society

Authentic recordings of 135 songs of 48 North American bird species.

Beautiful new collection which has taken years to prepare. All on one Long Playing micro-groove record enclosed in a colorful jacket.

Interesting commentary on each bird. 45 minutes of song grouped for easy location.

33 1/3 r.p.m. only \$7.95 postpaid

Order C.O.D. (postage added) or send check or Money Order for postage prepaid shipment.

ORDER TODAY DIRECT FROM

FICKER RECORDING SERVICE

Box 883 • Old Greenwich, Conn.

When writing advertisers, please mention Audubon Magazine

NOVEMBER-DECEMBER, 1952

**GET AN
Eyeful**
with
a
handful

THE ORIGINAL POCKET PRISM BINOCULARS

Available again to the general public...
the Moller binoculars are designed
only for those who demand the very best.

88 years of experience in making precision optics have
resulted in lenses with a depth-of-field, degree of sharp-
ness, and sparkling contrast never before known...

✓ Patented single "Roof-Edge" prism
✓ Patented adjustable "Steady-Hold" forehead rest
✓ Center focusing plus single focusing; both lenses
Sold at the world's finest dealers.

J. D. MOLLER CORPORATION
14 WARREN STREET, NEW YORK 7, N. Y.

In models from 6 to 11 power • Write for literature

READ *EAGLE MAN*

Charles L. Broley's Field Adventures
with American Eagles

by MYRTLE JEANNE BROLEY

Introduction by
EDWIN WAY TEALE



TEEN million readers of Elsie Hix' newspaper feature *Strange as It Seems* were recently introduced to a 72-year-old retired banker who spends his winters in Florida

not relaxing, but climbing 100-foot trees to band wild eagles!

As a thrilling hobby and a vital contribution to our knowledge about the eagle, Broley has banded over 1,200 more than 12 times as many as all other ornithologists together! This exciting true adventure is a priceless source of little known lore about the courtship, nesting, feeding and migratory habits of eagles. Illustrated with a rare collection of photographs.

"No history of bird watching... complete without... the work of Charles L. Broley."—Edwin Way Teale

— Mail FREE-Examination Coupon NOW! —

PELLEGRINI & CUDAHY, Dept. AM
41 East 50th St., New York 22, N. Y.
Ship me Broley's "EAGLE MAN" for full week's
FREE examination. After 7 days I'll remit only
\$3.50 plus postage, or else simply return book and
owe nothing.

Name.....

Address.....

City..... Zone..... State.....

N.Y.C. residents, add 3% sales tax

action by the Secretary of the Interior, primarily in the form of an order nullifying the original reclamation withdrawals, and vesting complete jurisdiction in the Fish and Wildlife Service, insofar as minimum wildlife refuge areas are concerned. The boundaries of those refuges should be definitely determined now, and thereafter permanently maintained.

Wilderness?

Your Society believes in the establishment and maintenance of wilderness areas in national forests and on the public domain. It sometimes wonders, however, just what definition should be applied to a wilderness area. The Forest Service reports that there are now 78 wilderness and wild areas covering 11 million acres, but that 312,000 people made use of these areas during the past year. Most of the use was presumably during the summer months and the average use per area was 4,000 people and, per acre, 45. It is not stated what the maximum intensive use per day was. We cannot help wondering how wild a wilderness can be which is so used.

Herbicides Again

At the Miami Conference, an official of the Bureau of Entomology and Plant Quarantine, Department of Agriculture, presented a paper in which, among other things, he said, "Wildlife biologists have found that herbicides can be useful tools in managing and improving wildlife habitat. By this new chemical means it has become economically feasible to eliminate vegetative types unproductive of wildlife and to establish plant forms beneficial to the needs of wild animals. These new herbicides may add 25 to 49 per cent more yield to our food supply, and selective weed killers can replace worthless weeds with plants that have a place in our future economy. Chemical agricultural aids are here to stay, and the use of such chemicals will probably increase year by year. There is nothing anyone can do to stem this tide. But this chemical tide needn't go forth

to the detriment of beneficial forms of life."

The philosophy expressed is directly contrary to that of your Society, which believes that all species of animals and plants are beneficial; that each has a beneficial role to play in the natural community; that if man does not happen to know the beneficial role of any given species, it is due to his ignorance. Your Society recognizes that any species of animal or plant may be, locally and temporarily, disproportionately numerous, and that in such event local and temporary control by duly constituted authorities, acting upon the findings of competent scientific investigation, may be warranted. We recognize that any species of animal or plant may appear to a given person injurious to his own particular immediate interests. We do not believe that a prejudicial point of view is biologically sound or in the public interest.

Robert Allen Honored

Bob Allen, in charge of our research program, was awarded this year by the Pennsylvania Chamber of Commerce the title of Pennsylvania Ambassador. The citation reads, in part, "An official of the National Audubon Society, his research and study have gained for him top rating as an authority on American wildlife. Moreover, his single-handed work in behalf of the whooping crane promises to save that rare and beautiful bird from extinction."

Bob Allen grew up in Williamsport, Pennsylvania. While appreciating the citation, he would be the first to state that hundreds of others had aided him in many, many ways in his successful work in behalf of the whooping crane.

Pacific Coast Representatives

We are pleased to announce the appointment of Vaughan MacCaughey as Pacific Coast Representative and of Sandy Sprunt as Assistant Pacific Coast Representative of your Society. Both men will have their headquarters in the Pacific Coast office of the National Audubon Society at 693 Sut-

ter Street in San Francisco. They assumed full-time duties October 1.

Mr. MacCaughey was for many years editor of the *California Teachers Association Journal*. He served as director of the Audubon Camp of California for the 1952 season. Before coming to California he was Superintendent of Public Instruction of Hawaii and a member of the Governor's cabinet. For a year he has been President of the Golden Gate Audubon Society.

Sandy is the son of Alexander Sprunt, Jr., well known to Audubon folk everywhere. Sandy has been an assistant leader of Audubon Wildlife Tours in the Everglades National Park and during the past summer was warden at the Vingtun Islands Sanctuary in Galveston Bay, Texas. Previously he spent two summers on the staff of the Audubon Camp of Texas. He has done graduate work in wildlife management at Virginia Polytechnic Institute.

WATCHING WILDLIFE AT CRATER LAKE

Continued from Page 387

places, are bare of plants and unstable. Here live the alligator lizard and the marmot, and rock wrens nest where the wind-flowers, paintbrushes and pentstemons grow. The cony, the little "rabbit" of the rocks, peeks out and cries, "EEK!" when surprised. Both the mule deer of eastern Oregon and the Columbia blacktail deer of western Oregon are in the park. Black bears are common, and there are some signs that elk still frequent this area.

To the impatient, "must-be-on-the-move" tourist, Crater Lake is undoubtedly beautiful, but dull. There are no speedboats or swimming pools, no playgrounds or cocktail bars. Instead, the incomparable blue lake weaves a spell and is ever changing in mood and color. Rock is crumbling to make soil, and plants take root and march slowly up the slopes of Mount Mazama. On the bare peaks, living plants and the raw elements struggle in a see-saw battle, but this thrilling invasion by the plants will never be completely fulfilled. Only the winds, the rocks and falcons of *Llao* will be the ruling partners of these mountain tops for a long, long time.

When writing advertisers, please mention Audubon Magazine



**TWO ALBUMS OF
AMERICA'S MOST
FAMILIAR BIRD
VOICES—ON 78 RPM**

American Bird Songs

*Recorded by Drs. P. P. Kellogg and
A. A. Allen for the Albert R. Brand
Bird Song Foundation, Cornell Univ.*

VOLUME I

THIS first album of bird voices, described by *Nature Magazine* as a "remarkably fine album of records . . . of particular interest to all bird enthusiasts," records familiar American birds from all over the United States.

An announcer identifies each bird before it sings. Such birds as the Olive-backed Thrush, Baltimore Oriole, Chuck-will's-widow, Prairie Horned Lark, and many others are heard.

Six 10-inch vinylite records, 12 sides.

\$8.50

VOLUME II

FIFTY-ONE more of America's songsters are recorded in this second album, which is of even finer technical quality than the first. All but two of the birds are different birds than those heard on Volume I.

Five 12-inch vinylite records, 10 sides.

\$10.50

COMSTOCK PUBLISHING ASSOCIATES

*A division of Cornell University Press
122 Roberts Place Ithaca, New York*



Bird Attracting in the South

By John V. Dennis

IN THE minds of many, bird feeding is associated only with snow, ice, and cold weather. For such persons, a tour of southern feeding stations, maintained by people in the South, will offer many surprises. Not only will you see birds coming to food during brief cold spells, but you will note them taking advan-

tage of food, water, and cover provided for them the year around.

The readiness with which birds respond to human hospitality has encouraged many people to make their grounds into bird sanctuaries. These people are well repaid. Daily, they enjoy a chorus of bird songs, and have the color and excitement which birds are sure to provide.

As an example of what a summer feeding station may bring in the South, I shall mention some of the birds Mr. and Mrs. Robert Edwards have been able to attract about their "nature study" retreat near McClellanville, South Carolina. Since this is a region where there is a possibility of seeing the rare Bachman's warbler, it is with an air of expectancy that you drive the five miles over a dirt road through pine woods to "Ardea." Once there, you are assured of seeing one of America's most brightly colored birds, the gorgeous red, green, and indigo colored, male painted bunting. At least three pairs of buntings are almost constant visitors to the Edwards' feeder throughout the day. Here, on their summer breeding grounds, the males are extremely pugnacious, and come to the feeder and the birdbath separately, as one male cannot tolerate the presence of another. Females and young of the year come two or three at a time. A mixture of millet and canary seeds seems to supply most of their food needs.

There is a profusion of birdlife in the dense growth about the cottage at the edge of a marsh bordering the inland waterway. Only a few of these birds come to the feeder. During my visit late in July, besides painted buntings and white-eyed towhees, the most common visitors to the feeder were cardinals and blue jays. In the fall, the white-eyed towhees here are replaced at the feeder by red-eyed towhees from the North. With them come white-throats and other sparrows.

Many miles to the south, at Daytona Beach, and within a habitat of small oaks and shrubs stunted by the winds and salt spray of the ocean, I had an opportunity to see what success could be had in attracting birds in what appeared to be an unpromising location. General and Mrs. Maurice Shearer have surrounded their home here with lawns and shrubbery. They have placed bird feeders where they are protected by foliage. Birdbaths are at the edge of the lawn. On three sides, a wall of dense



Herbert L. Stoddard, noted biologist of Thomasville, Georgia, shows his "cypress knee" and tree burl feeders which he puts up for wintering birds at Sherwood Plantation. The holes in the wooden burls and cypress knees are filled with a mixture of melted suet and pecan meats, which is much-liked by birds. Photograph by Mr. Stoddard.



FEED THE OUTDOOR BIRDS

These "free meals" will bring you enjoyment and happiness, for birds soon become daily visitors when given proper food. The birds appreciate a variety of wholesome seeds.

Food should provide the birds with proteins, carbohydrates and fats. A highly successful feeding station should contain seeds which are not only nutritious but especially favored by all winter birds. A combination of seeds will satisfy most birds. Seeds of sunflower, broken corn, cracked wheat, hemp, buckwheat, millet, milo maize, kafir corn, peanut hearts, hulled oats and certain other seeds are favorites of most birds. A little grit is needed to supply calcium and phosphorus.

Kellogg's Outdoor Seed mixtures provide a very adequate diet and are relished by most types of outdoor birds.

ORDER A SUPPLY TODAY

Kellogg's

Audubon Society Mixture

5 lbs.	\$1.35	5 lbs.	\$1.10	5 lbs.	\$1.40
10 lbs.	\$2.35	10 lbs.	\$1.80	10 lbs.	\$2.40
25 lbs.	\$5.15	25 lbs.	\$3.75	25 lbs.	\$5.25

Kellogg's

"Economy" Mixture

5 lbs.	\$1.10	5 lbs.	\$1.40
10 lbs.	\$1.80	10 lbs.	\$2.40
25 lbs.	\$3.75	25 lbs.	\$5.25

"Little Joe"

Sunflower Seed

Small, black and meaty

5 lbs.	\$1.40
10 lbs.	\$2.40
25 lbs.	\$5.25

Above are prices per package, delivered to your home by Parcel Post.

5¢ per pound higher if west
of the Rocky Mountains.

Send check or money order to

KELLOGG SEED COMPANY

320 E. FLORIDA STREET, MILWAUKEE 1, WISCONSIN

"FINE FOOD FOR FINE BIRDS Since 1918"

When writing advertisers, please mention Audubon Magazine

native growth surrounds the grounds. It is from this wall that a steady stream of birds passed to and fro while I watched during a visit in January. On the lawn several sleek mourning doves strutted about, and competed with ground doves, red-eyed towhees, and white-throated sparrows for food that had fallen to the ground under the feeders.

Keeping an ever constant guard upon the shelves were a pair of mockingbirds. They seldom ate, but were quick to chase away such birds as dared venture into the open. English sparrows, catbirds and brown thrashers they sent scurrying, but blue jays with their haughty, deliberate demeanor they respected. In orange trees close to the house the Shearers had impaled sliced apples upon twigs. The fruit provided a favored fare for catbirds and mockingbirds. The blue jays also had a food specialty—peanuts. But instead of eating them all, they buried many of them in the lawn. In time the peanuts, which the jays stored in the ground, sprouted, and the Shearers had to dig up the young plants.

At Fort Pierce, Florida, I visited the home of a woman who has probably done more than anyone to demonstrate the success of bird feeding in the South. She is Miss Clara Bates, a delightful person, who, with her brother, provides a warm welcome for anyone interested in birds. It is primarily to see painted buntings that bird enthusiasts from all over the country come to her home. From December until April they are not likely to be disappointed for a winter resident population is always present. As many as 10 may be seen at a time, but Miss Bates' yard, at the edge of the Indian River, also abounds with other birds. Fruit-bearing shrubs, such as firethorn (*Pyracantha*), and Brazil peppertree (*Schinus terebinthifolius*), attract robins, catbirds, mockingbirds and cedar waxwings. Visitors at the feeder, besides painted buntings, are towhees, cardinals, brown thrashers, red-bellied woodpeckers, blue jays, catbirds, and one or more oven-birds.

The oven-bird is so shy that its movements are undetected until a bird is seen picking up small pieces of grain beneath the feeder. Never more than one is seen at a time. As Miss Bates says, there may be one, or there may be 10 of them about. All these birds are attracted by ordinary chicken "scratch feed" to which Miss Bates sometimes adds sunflower seeds. Water in a flower-pot saucer attracts many additional birds, particularly warblers and vireos. Probably the most unusual guest was a turkey vulture which stayed several days and ate bread.

On the Gulf coast of Florida just north of St. Petersburg is the town of Clearwater. Here, like in many other Florida communities, introduced vegetation predominates—coconut palms, eajeput trees (*Melaleuca leucadendron*), Australian pines, also called horsetail beefwood (*Casuarina*), camphor trees, and others. The birds soon learn to use the exotic species. Sapsuckers seem to prefer the Australian pine over any other tree for drilling holes for sap, and ground doves search beneath these trees for their seeds. Many birds, from robins to fish crows and ring-billed gulls, collect in the camphor trees to feed on the abundant berry supply.

In every block in Clearwater I saw feeding stations. Here where frost is almost unheard of, it was surprising to find that so many people should take an interest in feeding birds. Yet birds come in goodly numbers to feeding stations. The most common visitors, both here and elsewhere in Florida, are brown thrashers, mockingbirds, red-bellied woodpeckers, cardinals and blue jays. Chickadees and white-breasted nuthatches, customary feeding station visitors in the North, are uncommon in Florida, and only the chickadee is a rare visitor at feeding stations. Most of the northern finches do not reach Florida in winter. Some of the sparrows which do, notably the chipping and white-throated sparrows, and the red-eyed towhee, are feeding station visitors. One of the most common in Clearwater is the red-winged blackbird. Many people have hanging feeders designed for nuthatches or chickadees, and it is an amusing sight to see red-wings precariously clinging to them.

Clearwater, too, has its painted buntings. A record scarcely to be equalled anywhere is that of a woman who has had painted buntings coming to her feeding station for 32 years! Her shrubbery-filled yard is ideally suited for buntings. They make their headquarters in the branching foliage of a Brazil peppertree which, in Florida, is also called Christmas-berry. Food on the ground and in a window tray attracts both buntings, and such interesting visitors as tufted titmice, oven-birds and yellow-throated warblers.

Just north of Clearwater, in the town of New Port Richey, one can be assured of seeing Florida jays. There are not very many places in Florida where this colorful, mischievous bird can be found, but at the home of Mr. Frank Keatock and his sister, just south of New Port Richey, they will feed from your hand and even perch on your head. They will take salted pea-

nuts and cookies almost endlessly. Mr. Keatock said that a jay once took so many peanuts that it finally began to hide those it couldn't eat in between his fingers. The Florida jay depends upon the scrub oak for its existence. Once the scrub is removed the jays disappear.

South of Thomasville, in Georgia near the Florida line, is Sherwood Plantation where Mr. Herbert L. Stoddard has carried out much of his well-known work in managing quail and other game species. Mr. Stoddard is also much interested in attracting songbirds and his experiments have been so successful that Sherwood has a wealth of birdlife scarcely to be excelled anywhere. Part of his success is due to his feeding program throughout the year. Mr. Stoddard has shown great originality in building feeders and in the use of bird food. He has had such success with pecan meats, readily available from orchards in Georgia, and suet, that he limits his songbird feeding entirely to these foods. He pours a mixture of suet and pecan meats, while hot, into holes drilled in cypress knees. Feeders made of parts of trees are in favor at Sherwood. The cypress-knee feeders are placed on stumps or hung from trees. The hardened mixture of suet and pecan meats is water repellent and may not need renewing for a week or two. Besides cypress knees, Mr. Stoddard has experimented with putting the mixture in pine cones or such odd objects as a cow's skull. In addition, pecan meats ground



FEED THE BIRDS NOW! Try Beginner's Luck

PACKARD FEEDER and fill of Packard Bird Food \$2.50 postpaid.

Everything for Wild Birds
Catalog free

WINTHROP PACKARD
Plymouth 3, Mass.

GREGOR'S

PEANUT BUTTER
AND
SUET FEEDERS

New, practical, field tested. Made of aluminum brass and wood. Economical too—refill them from your family supplies. Adjustable to tip out large jays and starlings and stay steady for the smaller birds. Each \$2.50 p. (specify peanut butter or suet) \$4.75 pair.

J. W. GREGOR, Townline Road, Nanuet, N. Y.

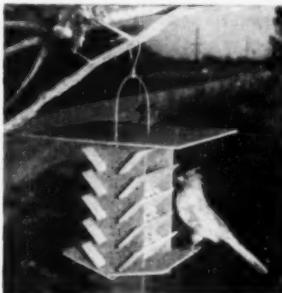
When writing advertisers, please mention Audubon Magazine

NOVEMBER-DECEMBER, 1952

E-Z FILL*

Wild Bird Feeder

Entirely New Principle — Birds Love It!



TWO SIZES

\$1.50

← ILLUSTRATED
9 1/2" x 10 1/2" x 9 1/2"

LARGER SIZE

\$3.00

Double
Compartment
Patent Applied For
*Trade Mark
Registered

E-Z to fill. Roof slides up on hanger for non-spill, easy filling. Durable, weatherproof Masonite Preswood throughout—lasts for years. No nails to rust or pull out. Visible food supply in automatic hopper. Feeder illustrated has ten feed openings. Double size has twenty openings. Complete with hanger and hook. Assembled in one minute.

PACKED IN E-Z TO MAIL PACKAGE
IDEAL FOR XMAS GIFTS

Please add 30c postage for \$1.50 size or 85c for \$3.00 size feeder. Send check or money order to

STUDIO GUILD PAOLI, INDIANA
P. O. Box 111 "Free catalog sent on request"

NEW! EXCITING ENTERTAINMENT

Right at your own window

BIRD CAFE

A wonderful gift to yourself or friend. Scientifically designed to keep food in top condition, available in rain or snow. The only window sill feeder that attaches to outside edge of sill (in front of storm sash or screen).



\$5.95
Post
paid

Hydcakes
40c each
Hydseed
5 lbs. - \$1.70

Clear view glass top protects food and permits you to see the birds in action. Stained wood. Holds 2 HYDCAKES and HYDSEED. Attaches easily from inside. Height 8", Depth 16", Length 16".

• Satisfaction Guaranteed

FREE . . .

Your Name and Address on a post card brings our complete catalog featuring more than 40 models for Christmas giving — priced .75c up.

ALL HYDPRODUCTS ARE RECOMMENDED AND APPROVED BY NATIONAL AND MASSACHUSETTS AUDUBON SOCIETIES.

HYDE BIRD FEEDER CO.
56 Fallon Street, Waltham, Mass.

I

to different sizes are placed on feeding trays.

When I visited the Stoddards at Sherwood Plantation in early April, 1951, I found birds flocking to the feeding areas. Goldfinches and myrtle warblers were exceptionally abundant. The birds came directly to feeders placed close to the windows. It seemed as though birds were flocking almost everywhere about the long plantation house, whether one watched from the windows of Mr. Stoddard's study, or from the rustic front veranda supported by pillars of palmetto logs. Large clusters of bamboo behind the house, and border plantings of shrubbery, gave the birds wonderful places to roost and protection in the event of danger.

I was particularly impressed at the ravenous way in which the birds came in to feed. Mr. Stoddard explained to me that there are food shortages in the South comparable to those in the North. Mast crops, the seeds of oaks and pines, particularly, are variable from year to year, and the failure of a harvest is likely to produce hardship for many birds. A failure of waxmyrtle to produce berries in the winter of 1950-51 resulted in a food shortage for myrtle warblers. It was difficult to put out food fast enough or in great enough quantity to keep them full. Likewise there are spells of bad weather which sometimes result in severe bird mortality. The occasional "northwester" may bring disaster to large numbers of tree swallows, mourning doves, bluebirds and other species. As Mr. Stoddard puts it, winter hardship in the South is aggravated by high humidity so that sudden drops in temperature chill men and birds to the bone as far south as Cape Sable.

During winters when birds face hardship, there are more visitors than usual at the feeders. Many birds still come, however, even though the weather is mild and natural foods are plentiful. Summer or winter finds red-bellied and downy woodpeckers, blue jays, chickadees, tufted titmice, Carolina wrens and brown thrashers at the feeders.

The Thomasville, Georgia region is just within range of some of the northern finches. There have been times when large numbers of pine siskins swarmed to the feeders. A flock of about 15 purple finches can usually be counted on during the winter. When all the visitors which have come both to Mr. Stoddard's feeder and those of his neighbors are added up the total is 44 species, which is an impressive number anywhere.

Wild turkeys are plentiful on Sherwood Plantation. There are about 200 of them. Ordinarily

they get enough food from food-patches of oats, chufa, and brown-top millet, and from natural sources, to take them through the winter. But in the event of crop failures some supplementary feeding is necessary. Then they are provided with peanuts, pecans and corn. The turkeys are found away from the house in extensive woodlands which stretch for miles in all directions.

Plantings have contributed much to the thronging birdlife of Sherwood Plantation. Providing cover and a source of food from early fall until April and early May are several species of privet. Mr. Stoddard speaks most highly of Chinese privet, *Ligustrum sinense*. For summer fruits Mr. Stoddard recommends black cherry and Hicks everbearing mulberry. Indeed the extensive plantings and all the wildlife management practices which are carried out to increase quail and wild turkey at Sherwood are also beneficial to songbirds.

Another enticement to songbirds are nesting boxes which Mr. Stoddard makes available in large numbers. One's first glimpse of Sherwood is sure to include martin houses on tall poles in the front yard. Next to the martins, Mr. Stoddard considers the tufted titmouse and crested flycatcher to be the species most easily attracted to birdhouses in his region. They will come to practically any rural doorway. The chickadee is another ready occupant of birdhouses. Bluebirds are quick to inhabit houses in open situations.

At present Mr. Stoddard is engaged in building houses to attract some of the less accommodating species. He is making about 50 houses out of cypress knees and hopes to attract flickers and other woodpeckers, wood ducks and screech owls.

Westward almost to the Louisiana state line is the home of Mr. and Mrs. Mayo Tolman, near Picayune, Mississippi. Their farm at the edge of the dense Pearl River swamps is naturally suited for birds. The Tolmans have been interested in making their farm even more attractive. They have built a small pond for water birds and put up birdhouses and feeders for songbirds. About 20 species have come to scratch feed scattered on the lawn or placed in a feeding tray. Of special interest are indigo buntings and blue grosbeaks which are plentiful during migration. Early in April, 1951, while visiting the Tolmans, I had the pleasure of seeing a flock of male indigo buntings feeding on the lawn. The blue grosbeaks are seen most often in the fall. Ten come at a time for sorghum and sunflower seed.

As the Tolmans, Mr. Stoddard, and so many others have demonstrated, birds in amazing variety can be attracted to southern homes and gardens. A friendly regard for birds is evident through the South. Birdhouses and birdbaths are in almost every other yard, and an increasing number of people feed birds. Whole communities are designated as bird sanctuaries. As a hobby, bird attracting has unlimited possibilities whether one lives in the North or the South.

SEEING HUMOR IN THE LIVES OF BIRDS

Continued from Page 379

and wandered off one by one to new adventures. When the last crow had departed, the magpies closed their long bills, hoisted their pendant tails, and fled.

Every bird of the cottonwood groves, from chickadee to pheasant, has probably had its share of humorous experiences. The antics of the smaller birds are often overlooked while one is occupied with flickers, owls and magpies. Personally, I am partial to magpies and often pause during my woodland wanderings to eavesdrop on the guttural conversations of these conspicuous birds. From a tangle of wild clematis vines shrouding the base of a creekside willow one of these large birds will utter a raucous "naaak." This is shortly answered by a series of "naaaks" or "whuuts" from a neighboring magpie and with each squawk, the bird lowers its iridescent head and raises its long tail. When I hear this conversational "chit-chat," I sometimes suspect that a magpie's "naaak" to his neighbor might be, in magpie vernacular, a: "Say, Mag, did you hear the one about the owl that ran into the cottonwood tree?"

DISNEY FILMS AVAILABLE

The first three films in Walt Disney's "True Life Adventure" series are now available in 16 mm. for rental by schools, museums, Audubon societies, and other educational organizations. "Seal Island," "Beaver Valley" and "Nature's Half Acre" may be rented for \$10.00 each per day. Application blanks may be obtained from: The 16mm Department, RKO Radio Pictures, Inc., 1270 Sixth Avenue, New York, N. Y. Send your rental application three to four weeks in advance of the date you have planned to show the film.

When writing advertisers, please mention Audubon Magazine



A UNIQUE
CHRISTMAS
GIFT???

HERE
IT IS!

audubon workshop

INCORPORATED

4931 N. Kentucky DEPT. A Chicago 30, Ill.

BRING THE BIRDS WHERE YOU WANT THEM

Your name on a postcard will bring Folder A showing 28 photographs of birds using simple, inexpensive feeders and foods that have been in successful use for over 40 years.

READ THE SIX RULES FOR ATTRACTING WILD BIRDS.

HOWES BIRD ATTRACTORS
2084 Perry Road, Norwalk, Connecticut

FULL VIEW FROM



INSIDE YOUR WINDOW

Combination Seed-Grain & Suet-Seed Cake Feeder. Especially designed for use at the window. The universal bracket may be attached to either end or on back of feeder. Roof hinges forward on dowel pins and is held closed by a wood button at front of feeder under roof. Aluminum angle ridge cap at juncture of roof and back assures rain and snow free food compartments. Sturdily built of finest materials. Screws for mounting too. Finish is nut brown and forest green oil stain. 12½" x 7¼" x 7" exclusive of bracket.

PRICE \$4.50 POSTPAID • PLEASE NO C.O.D.'S
Reference Given Upon Request

WILD BIRD SUPPLIES

1925 Division Ave. S. Grand Rapids 7, Michigan
Makers of fine accessories and foods for wild birds
for more than 14 years.



NEW AUDUBON HOUSE

IN July the Society acquired possession of the fine fireproof building at 1130 Fifth Avenue, New York City, on the corner of 91st Street. It was built in 1915 by Mr. Willard Straight and sold by his widow to Judge Elbert H. Gary in 1927, and by the latter's estate to Mrs. Harrison Williams in 1928. It was occupied as a residence by Mr. and Mrs. Williams until purchased by the Society. The architecture is Georgian. It occupies a lot 40 x 102 feet and is estimated to contain 15,000 square feet of usable floor space, as contrasted with the some 9,000 square feet at the present Audubon House at 1000 Fifth Avenue. The Society was fortunate in purchasing 1130 Fifth Avenue at a price approximating no more than the value of the land alone. It is hoped that the necessary alterations may have been completed by midwinter and that the headquarters staff of the Society may move from 1000 Fifth Avenue at that

time. If current negotiations are concluded, satisfactory sale will be made of 1000 Fifth Avenue, and possession of it will be granted to the buyer at the time of moving.

Here the Society will have suitable facilities, not only for proper housing of the staff, but for the reception of members and other visitors, attractive exhibits of its own activities and of loaned art and sculpture, adequate space for its library and a meeting room, though not an auditorium, for larger gatherings than it has been possible to hold at 1000 Fifth Avenue.

For some little time, the staff has been hampered in its operations through serious crowding at 1000 Fifth Avenue. Halls and stairways have been filled with cartons and files for which there was no space elsewhere. Departments have been so filled with desks and employees that there was no room for expansion. More than a year ago, the Board of Directors decided upon a search

for new and adequate headquarters where operations could be handled with far greater efficiency.

The need for this change has been occasioned by the great expansion in scope and volume of activities in recent years. It may surprise many members to learn that there are more than 50 employees at headquarters and nearly an equal number in the field. Growth in the volume of activities runs into percentages in the hundreds since 1938, when the move was made from 1775 Broadway to 1000 Fifth Avenue. This is attested to by the growth in size of the annual budget from some \$125,000 to \$600,000. A total of 5,431 persons have attended the summer camps for adult leaders. The 9,000,000th Audubon Junior Club member has been enrolled. The number of persons who have participated in Audubon Wildlife Tours by station wagon and boat is

6,947. Audubon Screen Tours will be given this season in 200 cities in the United States and Canada, with the cooperation of 26 naturalist-photographers, and, together with school lectures, will involve some 1,800 audiences.

The new quarters will give the Society space urgently needed to carry on and further expand the educational work which the founders began in a room on lower Broadway in 1905.

HOW TO GET YOUR BOOK PUBLISHED

We are established publishers whose basic policy is to encourage new or unknown authors. If you are looking for a publisher of your novel, scholarly or religious work, nature book, play, poetry, memoirs, etc., perhaps we can help you. Write today for Free Booklet BN.

Vantage Press, Inc., 120 W. 31st St., N. Y. 1
In Calif., 6356 Hollywood Blvd., Hollywood 28.

A "BRIEF-CASE" FULL OF FUN AND SURPRISES



Brief Case

13 1/2 x 10 in.

Setting Picture

37 1/2 x 8 1/2 in.

1. HUNT CATERPILLARS AND BUTTERFLIES indoors.
(Each book a Life cycle.)
2. COLOR & 3. CUT OUT the Models.
4. MAKE MANY PANORAMAS.
5. Choose Models from Nature Setting.

6. MOUNT FOR KEEPS your best set.
7. READ THE EXCITING STORY.
8. MAKE A BOOK.
9. CUT A JACKET out of the "Brief Case" to start a SCIENTIST collection.

When writing advertisers, please mention Audubon Magazine

*The following books—
advertised in this issue—
are available from the*

NATIONAL AUDUBON SOCIETY

GREEN TREASURY, by Edwin Way Teale	\$5.00
JOURNEY INTO WONDER, by N. J. Berrill	4.00
EXPLORING NATURE WITH YOUR CHILD, by Dorothy E. Shuttlesworth	3.95
HAMMOND'S NATURE ATLAS OF AMERICA, edited by E. L. Jordan	7.50
OUR AMAZING BIRDS, by Robert S. Lemmon	3.95
THE BEST LOVED TREES OF AMERICA, by Robert S. Lemmon	3.50
AUDUBON'S BUTTERFLIES, MOTHS, AND OTHER STUDIES, by Alice Ford	5.75
WILDLIFE IN COLOR, by Roger Tory Peterson	3.00
SPORTSMAN'S COUNTRY, by Donald Culross Peattie	3.00
A FIELD GUIDE TO THE MAMMALS, by William H. Burt and Richard P. Grossenheimer	3.75
THE FLIGHT OF BIRDS, by John H. Storer	2.50
THE SANDHILL CRANES, by L. H. Walkinshaw	3.50
SHRUBS OF MICHIGAN, by Cecil Billington	4.50
FERNS OF MICHIGAN, by Cecil Billington	5.00
EAGLE MAN, by Myrtle J. Broley	3.50
WILD FLOWERS FOR YOUR GARDEN, by Helen S. Hull	4.95
THE SEA AROUND US, by Rachel L. Carson	3.50
THE CLOSING OF THE PUBLIC DOMAIN, by E. Louise Peffer	4.50

SERVICE DEPARTMENT

NATIONAL AUDUBON SOCIETY

1000 FIFTH AVENUE
NEW YORK 28, N. Y.

Book Notes

By Monica de la Salle
Librarian, Audubon House

OUR AMAZING BIRDS: THE LITTLE-KNOWN FACTS ABOUT THEIR PRIVATE LIVES

By Robert S. Lemmon, *The American Garden Guild and Doubleday & Co., Garden City, N. Y.*, 1952, $7\frac{1}{4}$ x $10\frac{1}{4}$ in., 239 pp. Illustrated with 102 paintings in black and white by Don R. Eckelberry. Indexed. \$3.95.

No better choice for a lovely Christmas gift at a moderate price can be found than this beautiful volume. Mr. Eckelberry is at his best, and the author gives brief biographies in his usual, easily-readable, and interesting style.

HAMMOND'S NATURE ATLAS OF AMERICA

By E. L. Jordan, with the assistance of a group of specialists, *C. S. Hammond and Company, New York and Maplewood, N. J.*, 1952, $9\frac{1}{2}$ x $12\frac{1}{2}$ in., 256 pp. Illustrated. Indexed. \$7.50.

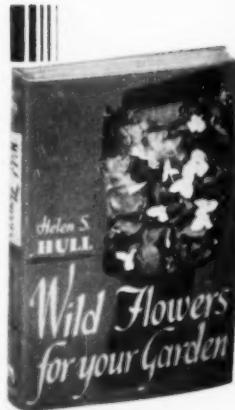
As an introduction and family reference book about the natural history of the United States, this ambitious work, stressing a new atlas type of presentation, has many advantages. It is a pleasant, visual-aid manner of acquainting the reader with the most interesting features of North America in geology, botany, zoology, climate and scenery. Of course, the scope of subject matter is so vast that it requires considerable condensation to cover even the essentials. Walter Ferguson, a young artist, did most of the 320 full-color paintings in the book. The National Audubon Society had the privilege of exhibiting some of his excellent work a few years ago. In addition, there are 34 pages of colored maps. Altogether, this is a very attractive and useful book.

BIRDS AS INDIVIDUALS

By Len Howard, with a foreword by Julian Huxley, *Collins, London*, 1952, $5\frac{1}{2}$ x 8 in.,

222 pp. Illus. with photographs by Eric Hosking. Indexed. 12 s. 6 d. (Available through British Book Centre, 122 East 55th Street, New York. About \$1.75)

Scientists and bird enthusiasts have for a long time had heated arguments regarding their observations of wild creatures. The former, guided by a factual habit of mind, accuse the latter of anthropomorphism, and amateurs cannot believe that animals are completely interchangeable in their patterns of behavior, acting as robots with no emotions or intelligence. The truth, perhaps, lies in between. If we observed human beings in their physical reaction only, as a mouse in a maze or a man in a crowded subway, conclusions might be quite startling. Foreigners would no doubt be misled if they judged Americans on the basis of their behavior in front of a television set at the time of the world series! Call it love, psychology or understanding, some other factor must come into play for an approximate interpretation of "stimuli." When the question is raised concerning animals, caution is all the more important because means of communication such as language do not exist. Further-



**HOW TO
ATTRACT BIRDS
TO YOUR
GARDEN**
•
**WILD
FLOWERS
for your
GARDEN**
by Helen S. Hull

This fascinating book by an expert tells all about how to grow and use wild flowers in your garden, beside a brook, in meadows or fields . . . anywhere. Includes section on plants that attract birds, propagation, culture, soils, collecting, maintenance, exhibition, with lists of wild flowers to grow in each of 48 states.

It's the easiest of all gardening—and so rewarding and enjoyable. "Makes the reader want to start a wild flower garden right away."

—Philadelphia Bulletin

8 Glorious color plates, 12 photographs, 60 drawings.
Mail Orders Filled Promptly.

M. BARROWS & COMPANY, INC.
Dept. AM-11, 425 4th Avenue, New York 16, N. Y.

Books for Christmas

Wildlife in Color

BY ROGER TORY PETERSON

Reproductions in full color of 453 beautiful Wildlife stamps, arranged in habitat groups and introduced by an outstanding American nature writer. \$3.00

Sportsman's Country

BY DONALD CULROSS PEATTIE

A book to take you out of doors in remembered places. Illustrated by Henry B. Kane \$3.00.

A new title in the famous Peterson series

A Field Guide to the Mammals

BY WILLIAM HENRY BURT and
RICHARD PHILIP GROSSENEIDER

Giving field marks of all species north of the Mexican boundary. Superbly illustrated \$3.75



HOUGHTON MIFFLIN COMPANY

When writing advertisers, please mention Audubon Magazine

more, fear of the observer, as well as the observer's own imagination, can both change and distort actions and reactions. Also, if the animal observed is fed regularly by the observer, it would seem that normal conditions in the wild are upset to a degree.

All this being said, Miss Len Howard has written a most unusual and fascinating book, a result of her mode of life and the birds that befriended her. The author lives in an isolated cottage in Sussex which she has literally turned over to the wild birds which have elected her garden as a permanent or transient residence. Windows and doors are always open, food and "toys" are everywhere available, roosting places are conveniently situated in every room, great tits and blue tits, robins and blackbirds are all at home, and not one of them is "self-conscious" when Miss Howard watches courtship, nesting or other activities. She knows them all by name and character, she notes their temperaments and emotions throughout the months and from year to year. We may be dubious about some of her anecdotes at times, as well as some of her interpretations of behavior, but the fact remains that such a close

association with birds can shed light on a subject that still demands much study. This is a modern St. Francis's diary, delightful and most interesting to read.

INSECTS: THE YEARBOOK OF AGRICULTURE, 1952

U. S. Department of Agriculture, Washington, D. C., 1952, 6 x 9 in., 780 pp. Illustrated. Indexed. For sale by Superintendent of Documents, Government Printing Office, Washington 25, D. C. \$2.50.

Beginning with general discussions of the number of insects, their history and habits, and a key to insect identification, the new "Yearbook of Agriculture" will be a practical aid to farmers and city people in recognizing useful insects and in controlling the others. A large section is devoted to insecticides, their use and dangers, and special aspects of economic entomology. Seventy-two color plates of the more important insects, complemented by line drawings and photographs, are among the outstanding features of this book.



*A treasury of hitherto
unpublished Audubon originals!*

Audubon's Butterflies, Moths, and Other Studies

*Compiled and edited by ALICE FORD
author of Pictorial Folk Art in America and Audubon's Animals*

Regular edition \$5.75

Limited de luxe edition
1000 only in
slip case, special binding
and an extra set
of the magnificent
plates for framing.
\$7.50

At all booksellers,
or

STUDIO-CROWELL
432 Fourth Ave., N.Y. 16

Now reproduced for the first time, a newly discovered collection of water colors by the great American artist-naturalist—exquisite butterflies, moths, other insects, and certain reptiles, with 50 specimens in full color and 50 in monochrome. With lifelike fidelity, the color plates show Audubon's masterpieces in the size he actually painted them. Eighty pages of text give the historical background of the drawings together with a profile of Audubon's romantic life and achievements. A big, beautiful, unique book to read, to own, to give.

7 1/2 x 10 120 pages \$5.75

When writing advertisers, please mention Audubon Magazine

WILD GEESE AND ESKIMOS, A JOURNAL OF THE PERRY RIVER EXPEDITION OF 1949

By Peter Scott, *Country Life*, London, England. Available through Charles Scribner's Sons, New York, 1951. 9 x 5 3/4 in., 254 pp. Indexed. \$5.00.

This is not a formal record of a scientific expedition in a little-known region of arctic Canada. It is a vivid, personal story interpreted by a talented artist and naturalist. Fully as interesting as the observations of breeding waterfowl (including the rare Ross' goose) are the accounts of the Eskimos of the Perry River area and their way of life. The book is illustrated with photographs by Paul Quineau, a member of the expedition, an oil painting, and black-and-white drawings by the author.

THE CLOSING OF THE PUBLIC DOMAIN
Disposal and Reservation Policies, 1900-1950

E. Louise Peffer

"Must" reading . . . as interesting as it is informative." —*Journal of Forestry*

\$4.50

Stanford University Press Stanford, California

A NATIONAL
BEST SELLER
FOR MORE THAN
68 WEEKS!
Isn't it time you read

THE
SEA
AROUND US

By RACHEL L. CARSON

AUTHOR OF

Under the Sea-Wind

\$3.50 EACH, AT ALL BOOKSTORES

Oxford University Press

114 FIFTH AVENUE, NEW YORK 11

When writing advertisers, please mention Audubon Magazine

NOVEMBER-DECEMBER, 1952



A big and beautiful book about the believe-it-or-not world of birds

OUR AMAZING
BIRDS

By ROBERT S. LEMMON
Illustrated by
DON R. ECKELBERRY

Did you know that the crow is the Einstein of our native birds? The bittern's love song sounds like a pump? 30 cedar waxwings can eat 90,000 cankerworms in a month? Here are little known facts about the private lives of 102 American birds—their habitat, range, intelligence and unusual characteristics. Warmth, humor and careful attention to accurate detail have gone into this magnificent book—with glowing realism in the black and white paintings of each bird by Don Eckelberry. \$3.95

THE BEST LOVED
TREES OF AMERICA

By ROBERT S. LEMMON with 239 illustrations picturing the entire year's cycle for each of 39 trees. A superb handbook to our country's favorite trees: their characteristics, regions, fruit blossoms and root systems. "Mr. Lemmon writes with the accuracy of a naturalist and the response of a poet." —*Christian Science Monitor*. "A fine book to have handy." —*N. Y. Herald Tribune*. "No nature lover can afford to be without this beautiful book." —*Knoxville News Sentinel*. \$3.50

TEN DAYS FREE EXAMINATION

To: DOUBLEDAY & CO., INC. Dept. A-11
Garden City, N. Y.

Please send me for ten days FREE examination the book(s) I have checked below:

Our Amazing Birds, \$3.95

Within ten days I may either return the book(s) and owe nothing, or keep it (them) and send only the listed price plus a few cents shipping cost, in full payment

Name _____

Address _____

City _____

Zone _____ State _____

SAVE! Check here if you prefer to enclose payment with this coupon, in which case we will prepay all shipping costs. Same return privilege; refund guaranteed.

Something
NEW
Has Been Added



to the *Audubon*
Wildlife Tours



This season, for the first time in history, you can cruise by power boat into the remote Cape Sable region of the Everglades National Park through the canal between Bear and Gator Lakes that personnel of this Society and the National Park Service have recently opened up. On this NEW TOUR ROUTE you will see shore birds and waterfowl by the thousands; egrets, ibises, herons and white pelicans by the hundreds. Roseate Spoonbills are a possibility and, if you're lucky, you might have a glimpse of the rare short-tailed hawk found only in this region.

These tours run every Sunday, Tuesday and Friday from Nov. 30 through Jan. 4th, basing at Miami. Tour fee is \$10 per person. Make your reservation NOW in order to be assured a place on these NEW trips.

(Two-day tours into the Everglades, and also in the Okeechobee-Kissimmee country, start on January 13th and will run through the spring. Tour fee is \$20 per person.)

For reservations or further information write to

**NATIONAL
AUDUBON SOCIETY**
13 McAllister Arcade, Miami, Florida

THE POPULAR HANDBOOK OF BRITISH BIRDS

Edited by P. A. D. Hollom, Witherby, Ltd., London, 1952. 8½ x 5½ in., 424 pp. Illus-
treated. Indexed. 45/. (Approx. \$7.50).

Many readers will welcome this condensed and cheaper version of Witherby's five-volume "Handbook of British Birds." It would be a field guide if it were a little less bulky, as it gives recognition marks, habitat, general habits, food and distribution of all birds occurring in the British Isles, along with colored illustrations of birds (female and young included) and eggs. It is a most useful reference book for European birds.

GREEN TREASURY: A JOURNEY
THROUGH THE WORLD'S GREAT
NATURE WRITING

With an introduction and interpretive com-
ments by Edwin Way Teale, Dodd, Mead &
Co., New York, 1952. 8½ x 5¾ in., 612 pp.
Illustrated by Michael H. Bevans. Indexed.
\$5.00.

It would be foolish to expect to find all the authors we loved and the writings we liked best in anthologies: they are chosen by an editor whose selection comes from his own knowledge of the field, and reflects his taste and philosophy. The qualities and values of an anthology depend therefore upon its editor. Mr. Teale has made an avocation of reading naturalist-authors for many years; already in 1941, under the title "*The Great Companions of Nature Literature*," he listed a hundred-volume nature library for *Audubon Magazine*. Readers of his "Days Without Time," "The Golden Throng," and more recently "North with the Spring," will agree that he is one of the outstanding nature writers of today whose writing combines facts with a pleasant style. There is no doubt that Mr. Teale derived great pleasure from his readings, and so shall we who share them in "Green Treasury."

• • •

CHRISTMAS COUNT DATES

December 20-28

Send in counts by January 15, 1953

FOR CHRISTMAS GIVE

Audubon Field Notes

(6 issues per year)

\$2 A YEAR—\$3.75 2 YEARS—\$5.50 3 YEARS

1000 Fifth Avenue, New York 28, N. Y.

When writing advertisers, please mention *Audubon Magazine*

LETTERS—Continued from Page 344

learn that Audubon's drawing of the smallest North American bat *Myotis subulatus leibii*, has made a valuable contribution to science. "Only eight of these little bats," according to Charles Mohr and Earle L. Poole, "having been collected" since Audubon wrote his description for the figure. Other readers will share my delight that years of search by Mr. Mohr led at last to the work of a man, the greatness of whose contribution to zoology is all too often minimized by scientists.

ALICE FORD

New York, New York

DDT Story Gets Around

Your article, "Wildlife in a Chemical World,"* was used as the basis of two newspaper stories here, was the theme of a half hour radio program by the *Detroit News* farm editor on the effects of DDT spray on wildlife, brought 20 minutes of time on a TV show over WXYZ in an interview with one of our Audubon members using the article, and was given several minutes on three radio newscasts over two other stations. Also it was quoted in a discussion of DDT and its effect on wildlife in a 15 minute talk on the subject over CKLW, a Canadian station in Windsor.

ANN M. BOYES, *Secretary*
Detroit Audubon Society

Detroit, Michigan

George Miksch Sutton in Oklahoma

Many friends of "Doc" Sutton, well-known bird artist and ornithologist, will be interested to know that he is now Professor of Zoology, Curator of Birds, at the University of Oklahoma, Norman, Oklahoma. At the 1952 A.O.U. meeting, October 20 to October 24, at Baton Rouge, Louisiana, he had on exhibit paintings of Georgia birds, which will illustrate the forthcoming book on Georgia birdlife. The Chicago Museum of Natural History has recently shown his large Mexican bird paintings.

We are sure that "Doc," in his new position, will continue to add to his bright career of artist, teacher of ornithology and inspiring leader. We wish him every success.—The Editors

• • •
Christmas Gifts

Throughout this issue of *Audubon Magazine* are many Christmas gift suggestions. We hope you will take advantage of the fine items offered—both for children and adults.—The Editors.

* Published in *Audubon Magazine*, May-June and July-August, 1952 issues.

When writing advertisers, please mention *Audubon Magazine*

Cranbrook Institute of Science BULLETINS

★ NATURAL HISTORY BOOKS
FOR THE AMATEUR AND
PROFESSIONAL ALIKE

1. The Flight of Birds, Storer. 112 pp., illus., cloth	\$ 2.50
2. Sandhill Cranes, Walkinshaw. 202 pp., illus., cloth	\$ 3.50
3. Bird Houses, Baths, and Feeding Shelters, Sawyer. 36 pp., illus., paper	\$.20
4. Island Life in Lake Michigan, Hatt and others. 191 pp., illus., cloth	\$ 4.00
5. Juvenal Plumage, Sutton. 36 pp., illus., paper	\$.50
6. Guide to Higher Aquarium Animals, Boardman. 108 pp., illus., cloth	\$ 2.00
7. Shrubs of Michigan, Billington. 339 pp., illus., ed. 2, cloth	\$ 4.50
8. Algae of the Western Great Lakes Region, Prescott. 946 pp., illus., 51 pp. of bibliography, cloth	\$10.50

★ NEW CRANBROOK BOOK

9. Ferns of Michigan, Billington.

Features: All the ferns known to occur in Michigan are included—23 genera, 80 species, 37 varieties, and 39 forms; keys and short descriptions for genera, species, and varieties; fully illustrated with line drawings, photographs, and pictorial glossary; maps for each species and variety by county and each record is based on a specimen or voucher; 240 pp., cloth \$ 5.00

★ WRITE FOR A COMPLETE LIST.

Orders accompanied by remittance may be sent directly to

CRANBROOK INSTITUTE OF SCIENCE

Bloomfield Hills, Michigan

NEW FILMS

*A short description of
each film and details of
rentals may be obtained
by writing to:*

NATIONAL AUDUBON SOCIETY, 1000 Fifth Avenue, New York 28, N. Y.

PHOTO AND FILM DEPARTMENT

CLASSIFIED

Rates for classified advertising: 15¢ a word; minimum order \$3.00.

WE ARE BINOCULAR SPECIALISTS. See our recent "Know Your Binoculars" articles in Audubon Magazine—how to use, choose and check a binocular. Reprint now available—10¢. Also send for our free list of new and reconditioned binoculars. Includes all American, German and Japanese binoculars that pass our exacting laboratory tests, some as low as \$20. We ship on 20 days' trial. Liberal trade-in on old glasses. We also repair and coat all makes of binoculars; if yours is not in good condition, send it to us for free estimate. We've been serving birders since 1923; let us solve your binocular problem. Closed Saturdays except by appointment. **The Reicherts, Mirakel Repair Co.**, 14 West First St., Mount Vernon 2, N. Y.

BOOKS on Birds, Mammals, Natural History subjects. New or out-of-print. Catalogs furnished. **Pierce's, Winthrop, Iowa.**

BINOCULARS. Eventually you want the finest. Always available New, latest Hensoldt, Zeiss, Marburg-Lahn, \$75 up. "Langguth's," 1901 Taggart, Boise, Idaho.

BINOCULARS. Service and repair on all makes. Prompt service and return. Also authorized dealers for Bausch & Lomb and we sell many other makes of binoculars, field glasses and telescopes. Established 1921. **Charles W. Mayher & Son, 5 South Wabash Avenue, Chicago 3, Illinois.**

WANTED TO BUY. Books on Birds and Mammals. Single volumes or complete collections. Generous prices. **Pierce Book Company, Winthrop, Iowa.**

BOOKS ON BIRDS. Natural History, Falconry. Out-of-print, new. Catalogue sent free. **W. R. Hecht, 3965 Shenandoah, St. Louis 10, Missouri.**

MOVIE FOOTAGE WANTED, original. 16 mm. Kodachrome of birds and other wildlife by amateur photographer. **A. M. Dewey, 3 E. 336th Street, Willoughby, Ohio.**

PRISMATIC BINOCULARS. microscopes, save 50% or more. Free trial. Illustrated folder, binocular selecting guide, price list free. **Prentiss Importers, 235 Mercury Building, Los Angeles 25, Calif.**

ENLIVEN CLUB PROGRAMS by showing rented Kodachromes of beautiful flowers, gardens, trees, animals, travel. **Southern Colorslides, Box 584, Atlanta, Georgia.**

FREE BOOK CATALOG 8. Over 250 titles on every kind of pet. **All-Pets, PO Box 151, Fond du Lac 18, Wisconsin.**

When writing advertisers, please mention Audubon Magazine

The Photo and Film Department announces the addition of 12 new titles to its film rental library. The collection now numbers 60 titles which may be rented by individuals, schools, clubs, etc. The new titles include *The Bluebird*, *Cultivate Your Garden Birds*, *Duck Hunters' Dilemma*, *The Loon's Necklace*, *Private Life of the Gannets*, *Squeak*, *the Squirrel*, *The Story of the Bees*, *The Web of Life, Part I: The Strands Grow*, *Part II: The Strands Break*, *Wildlife of the Sierra Nevada*, *Wonders in a Country Stream* and *Wonders in Your Own Backyard*.

AS BINOCULAR EXPERTS with more than 25 years experience we will be glad to help you select a glass from our stock of tested high quality Swiss, German, French and Japanese binoculars. Prices from \$15.00 up. We also repair and coat at lowest cost. Satisfaction guaranteed or money refunded. New glasses are shipped on two weeks' free trial. **Kern Binoculars, Inc., 170 Fifth Avenue, New York 10, N. Y.**

SCENIC INNS OF AMERICA, the guide book to the exceptional resorts in settings of natural beauty—in the mountains, in the valleys, by the lakes, by the sea, all described in detail. Also regional descriptions of the country, natural wonders, scenic areas, sightseeing attractions, etc., near each inn. 188 full-color pictures. For vacationers, tourists, and arm-chair travelers. \$1.50, check or cash. Dept. 12. **Scenic Inns of America, Inc., 5441 Second Avenue, Detroit 2, Michigan.**

MAN TO EARN \$90 WEEK UP. Long needed invention. Advertised Post, Colliers, Country Gentleman. Prospects everywhere. Full or part time. Exclusive. No investment. Free Samples. Write **Red Comet, Inc., Dept. 96-C, Littleton, Colorado.**

BINOCULARS. New 8x30 or 6x30 center focus or individual focus, high quality, featherweight, made in Germany, \$45 with leather case. Satisfaction guaranteed or money refunded. We also have a complete line of all American, German and Japanese binoculars, new and used. Write for catalog. **Louis Domingues, 70A, Kerrville, Texas.**

NATURE IN COLOR. 2x2 identified slides. Beautiful minerals, insects, western flowers, trees, shells, cloud forms, geology, animals, astronomy, Greenland, desert and mountain scenery. 3500 titles available. Free lists. Mention subjects in which interested. **Scott Lewis, 2500 Beachwood, Hollywood 28, Calif.**

WILDFLOWERS, FERNS, to brighten a shady nook. Hardy, healthy, mature. Free Catalogue. **Wake Robin Farm, Box 33, Home, Pennsylvania.**

AUDUBON'S ANIMALS. 1st Edition Litho. Prints—22" x 28". Printed and colored by J. T. Bowen, Philadelphia, 1843-1848. Complete works. Good condition. Will consider best offer. **B. L. Franklin, 321 Carew Street, Springfield, Massachusetts.**

FOR SALE: Summer home, north shore Long Island, 220-foot harbor frontage, secluded, high, beautiful site, two-car garage. Rare advantages to a naturalist; perfect for children. \$12,000. **R. C. Murphy, American Museum of Natural History, New York City.**

Every Season Brings Adventure--

Here are 10 guides to winter fun for only \$1.00!

(15 cents each)

STUDY THE STARS—ideal for winter evenings

HOW TO GROW PLANTS—do some window gardening

TERRARIUMS—make lovely under-glass gardens

AQUARIUMS—make attractive under-water gardens

ADVENTURE WITH PLANTS—pot winter rosettes, make winter bouquets

BIRD NESTS—easy to find in bare trees

TWIGS OF COMMON TREES—tell trees by their twigs

CLUB MOSES—beautiful, forest ground cedars

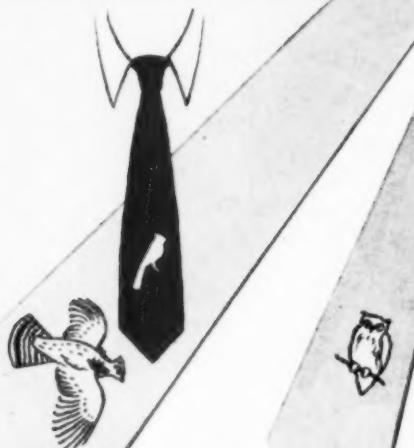
TREES ARE HISTORY BOOKS—how to read the stories a tree stump tells

WINTER SLEEP—learn who's asleep in your woods

For all-year Guides to the Outdoors—send \$5.00 for complete set of 60 AUDUBON NATURE BULLETINS

(for adults or children of secondary schools)

NATIONAL AUDUBON SOCIETY
1000 Fifth Avenue, New York 28, N. Y.



\$3.50
EACH
(boxed)

Beautiful
NEW

Audubon Neckties! Fashioned by one of the top designers of smart cravats, from designs by F. L. Jaques. Finest wool gabardine. Four colors—brown, navy, hunter green and maroon. Four subjects—cardinals, screech owls, ruffed grouse and egrets. The designs are diminutive and embroidered in natural colors. Each design is executed in each color. Please state which color and which design you wish to purchase.

Order from Service Department

NATIONAL AUDUBON SOCIETY
1000 FIFTH AVENUE, NEW YORK 28, N. Y.

Audubon Christmas Cards



Two Cardinals on a bough of longleaf pine from an original painting by Athos Menaboni.

20c each 10 for \$1.75 25 for \$3.75
5" x 7" Envelopes included
Please add 10c for postage.

A beautiful reproduction of Anna's and Black-chinned Hummingbirds from an original painting by Roger Tory Peterson. 15c each.

5" x 6 1/2" Envelopes included
Please add 10c for postage.

Order from

S E R V I C E D E P A R T M E N T



National Audubon Society

1000 FIFTH AVENUE, N. Y. 28, N. Y.

THIS PUBLICATION IS REPRO-
DUCED BY AGREEMENT WITH THE
COPYRIGHT OWNER. EXTENSIVE
DUPLICATION OR RESALE WITH-
OUT PERMISSION IS PROHIBITED.